

SITE ASSESSMENT TECHNICAL SUPPORT

***Kitsap Rifle and Revolver Club
Site Reassessment Report
Bremerton, Kitsap County, Washington***

***Task Order No.: 68HE0720F0160
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ABBREVIATIONS AND ACRONYMS

AMSL	above mean sea level
bgs	below ground surface
C&S	Ceremonial and Subsistence
Camp Harris	U.S. Navy Camp Wesley Harris
CDM	Camp Dresser & McKee
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLARC	Cleanup Levels and Risk Calculation
COC	contaminants of concern
DOC	Department of Commerce
DQI	Data quality indicator
E & E	Ecology & Environment, Inc.
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
HNO ₃	nitric acid
HRS	Hazard Ranking System
IA	Integrated Assessment
ID	Identification
IDW	investigation-derived waste
IPaC	Information for Planning and Consultation
KCPD	Kitsap County Parks Department
KPHD	Kitsap Public Health District
KPUD	Kitsap Public Utility District
KRRC	Kitsap Rifle and Revolver Club
MEL	Manchester Environmental Laboratory
mg/kg	milligrams per kilogram
MS/MSD	matrix spike and matrix spike duplicate
MTCA	Model Toxics Control Act
N/A	not applicable
NOAA	National Oceanic and Atmospheric Administration

ABBREVIATIONS AND ACRONYMS, CONTINUED

NPL	National Priorities List
NWS	National Weather Service
PAH	polycyclic aromatic hydrocarbon
PPE	Probable Point of Entry
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
ROW	right-of-way
RR	Rural residential
RW	Rural wooded
SA	Site Assessment
SAP	Sampling and Analysis Plan
SCO	Sediment Cleanup Objective
SEMS	Superfund Enterprise Management System
SHA	Site Hazard Assessment
SIM	selected ion monitoring
SMS	Sediment Management Standards
SQG	Freshwater Sediment Quality Guideline
SQL	Sample quantitation limit
START	Superfund Technical Assessment and Response Team
SVOC	semi-volatile organic compound
TAL	Target Analyte List
TBA	Targeted Brownfields Assessment
Talasaea	Talasaea Consultants, Inc.
TDL	target distance limit
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
USPSA	United States Practical Shooting Association
WA	Washington
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife

ABBREVIATIONS AND ACRONYMS, CONTINUED

WDNR	Washington State Department of Natural Resources
WDOH	Washington State Department of Health
WESTON®	Weston Solutions, Inc.
WQS	Water Quality Standards
WRCC	Western Regional Climate Center

1. INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the U. S. Environmental Protection Agency (EPA), Region 10 tasked the Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) with performing a Site Reassessment to address community concerns of data gaps from previous sampling events, and to document potential migration of contaminants off-site of the Kitsap Rifle and Revolver Club (Site) in Bremerton, Kitsap County, Washington (WA) (**Figure 1**). WESTON® completed Site Reassessment activities under Task Order/Subtask Number 68HE0720F0160/68HE0720F0160-008, issued under EPA, Region 10, START-V, Contract No. 68HE0720D0005.

The Site is located within the watershed for Chico Creek, a salmon-bearing stream. The Kitsap Rifle and Revolver Club (KRRC) operated as a small-arms range from 1926 to 2016. Due to a citizen's petition for a CERCLA Preliminary Assessment, EPA conducted an Integrated Assessment (IA) (Ecology and Environment [E&E], 2011) at the Site that indicated CERCLA hazardous substances are present on-site including in wetland sediments.

EPA determined to conduct a reassessment at the Site because of the following:

- The Site operated as a shooting range since 1926. Lead and arsenic are common contaminants associated with gun ranges.
- EPA received concerns from citizens requesting reinvestigation.
- Previous sampling conducted by EPA at the Site indicated that CERCLA hazardous substances are present on-site and may potentially impact downstream off-site surface waters.
- Data gaps exist from a previous sampling event, leaving the potential impact to sensitive downstream receptors unknown.
- A reassessment investigation at the Site is necessary to determine the potential for contaminants from the Site to affect nearby and downstream receptors.

The objective of this Site Reassessment was to determine if contaminants of concern (COCs) are migrating from the Site into the downstream channel, potentially impacting Chico Creek, which is a salmon fishery. The goals of the Site Reassessment to achieve this objective were to:

- Collect and analyze samples to determine the potential for off-site migration of contaminants;
- Provide the EPA with adequate information to determine whether the Site is eligible for placement on the National Priorities List (NPL); and
- Document any threat or potential threat to public health or the environment posed by the Site.

The sampling locations were identifiable and generally accessible either from the right-of-way or from property administered by the Kitsap County Parks Department (KCPD). Work performed during this reassessment investigation was conducted in cooperation with the KCPD and the Kitsap County Public Health District (KPHD).

This report has been prepared in accordance with EPA's "Guidance for Performing Site Inspections under CERCLA," Interim Final, September 1992 (EPA, 1992). This report provides an evaluation of field sampling results from activities conducted in May 2021 and November 2021. Field activities followed the Sampling and Analysis Plan (SAP) (WESTON, 2021a), and the Site Assessment and Targeted Brownfields Assessment (TBA) Programmatic Quality Assurance Project Plan (QAPP) (Program QAPP) (WESTON, 2021b).

2. SITE BACKGROUND

2.1 Location and Description

Table 2-1 Site Description

Site Name	Kitsap Rifle and Revolver Club
SEMS ID	WAN001002908
Site Address	4900 Seabeck Highway NW, Bremerton, WA
Latitude/Longitude*	47.566539° North, 122.652797° West
Legal Description	Parcel: 36250140021006 SE ¼ of Section 36, Township 25 North, Range 1 West, W.M.
Size (acres)	70.34
Owner(s)	Kitsap Rifle and Revolver Club

Notes:

*Global Positioning System (GPS) coordinates for center of Site

ID Identification

SEMS Superfund Enterprise Management System

The KRRC Site is a shooting range that is located at 4900 Seabeck Highway NW, Bremerton, Washington (47.60874373° North, 122.74545692° West); approximately 5 miles northwest of Bremerton proper, and can be accessed from Seabeck Highway, which also forms the southern boundary. The Site is approximately 72 acres, and the shooting range occupies approximately 8 of the 72 acres. The Site is located on Rural Wooded (RW) zoned land. The Kitsap County Newberry Hill Heritage Park borders the Site to the north, west, and southwest of the Site and is park zoned land. The Site is bordered to the east and southeast by the U.S. Navy Camp Wesley Harris (Camp Harris), part of Naval Base Kitsap, and is military zoned land. Rural residential (RR) zoned land also borders the Site at the southeast corner, between Camp Harris and Seabeck Highway. To the south of the Site, south of Seabeck Highway, is more RR zoned land that is partitioned into 42 residential parcels. The closest residences to the Site are located across Seabeck Highway, less than 500 feet south of the KRRC Clubhouse. The Site Location is shown on **Figure 1**.

The topography of the shooting range is relatively flat and sits at approximately 370 feet above mean sea level (AMSL). The Site slopes to the west and southwest. Wetlands occupy approximately one-third of the acreage on the Site. Surface water from the wetlands flows south for approximately 0.7 mile along an unnamed stream to the confluence with Wildcat Creek. From

Wildcat Creek, surface water flows approximately 1.9 miles to join Chico Creek and then another 2.4 miles into Chico Bay. Wetlands in the Newberry Hill Heritage Park are the headwater source of a tributary to Wildcat Creek and are located directly north and northwest of the shooting range.

2.2 Ownership, Use, and Development History

The Site has operated as a gun range since its development in 1926. Historically, the land was owned by the Washington Department of Natural Resources (WDNR) until 2008, at which time the property was acquired by Kitsap County as part of a larger 500-acre land swap. Shortly after this acquisition, Kitsap County deeded the land to the current owner, KRRC (Kitsap Public Health District [KPHD], 2012). As part of the deal, the KRRC agreed to indemnify Kitsap County regarding issues associated with potential lead contamination on the property. Additionally, the purpose of the bargain and sale agreement was to clarify the non-conforming uses of the property already in place and recognized at the time of the sale. The sale agreement also stated that the KRRC would confine its active shooting facility to the historical use of the approximately 8 acres, with the balance of the property serving as a safety and noise buffer. Any additional use outside of the 8 acres would require permits and would be subject to the rules and regulations of Kitsap County for the development of private land (E&E, 2011).

The Site features include a 50-yard pistol range with covered shooting line, a 200-yard rifle range with covered shooting line, and approximately nine small sport pistol ranges. Small-arms firing ranges are defined as ranges that allow 50-caliber or smaller, non-exploding ammunition, including shotgun ammunition (**Figure 2**). The two trailers located on the Site operate as classrooms, meeting rooms, office environments, or range stores.

2.3 Historic and Current Site Operations

The Site offered weekly U. S. Practical Shooting Association (USPSA) practical classes and falling plate matches. The Site also offered monthly USPSA pistol matches and steel matches. In addition to the matches, the Site offered personal protection classes, range officer classes, training, and qualifications for military and law enforcement agencies, and Washington Department of Fish and Wildlife's (WDFW) Hunter Education courses. During the time of active operations, the KRRC was open to the public (E&E, 2011). The Site has been closed and prohibited from discharge of

firearms or permitted operation of a shooting range since December 2016 under injunctions from the Kitsap County and Pierce County Superior Courts. Non-explosive discharge activities such as archery and air-propelled arms shooting continue to occur on Site.

2.4 Previous Investigations

E&E conducted an IA at the KRRC in June 2011. The objectives outlined for the investigation included determining the potential threat to public health or the environment posed by the Site; determining the potential for a release of COCs, into the environment; determining the potential for placement of the Site on the NPL; and determining if a Removal Action was warranted.

Twenty-seven samples were collected during the IA, which consisted of 16 surface soil samples collected on-site from impact berms and the range floor from approximately 12 to 18 inches below ground surface (bgs), eight sediment samples collected from the on-site wetlands from approximately 0 to 6 inches bgs, and three surface water samples collected from the on-site wetlands with direct collection. Soil samples collected on site were analyzed for semi-volatile organic compounds (SVOCs) and Target Analyte List (TAL) metals. Sediment and surface water samples were analyzed for SVOCs, TAL metals, and explosives/propellant residues.

Analytical results for soil samples collected adjacent to shooting range features indicated levels of antimony, arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, copper, fluoranthene, indeno(1,2,3-cd) pyrene, lead, and pyrene that exceeded Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Use and EPA Regional Screening Levels for Residential Soil. In addition, analytical results for sediment samples collected on site indicated lead exceeded the limits of the Freshwater Sediment Quality Guidelines (SQGs) in four of the eight samples collected. Sediment results exceeding SQG concentrations for lead ranged from 780 to 1,260 milligrams per kilogram (mg/kg). Cadmium was detected in one sediment sample at a concentration equal to the SQG lower screening level (SL 1) of 1.1 mg/kg. No explosives/propellant residue or SVOCs were detected in sediment samples collected from the wetlands. Analytical results for surface water samples collected on site indicated that TAL metals (with the exception of iron), SVOCs, and explosives/propellant residue were not detected above laboratory detection limits.

The E&E investigation concluded that based on the results of the IA field sampling events, the sources of CERCLA hazardous substances were present on the Site and migrating to on-site wetlands adjacent to the 50-yard pistol range and sport pistol ranges within the Site. Six sediment and two surface water samples were collected from within the wetlands at the Site. Results from the surface water samples did not indicate the presence of contamination relative to background concentrations; however, results from the sediment samples indicated the presence of antimony, cobalt, copper, and lead at elevated concentrations with respect to background concentrations, and at levels exceeding MTCA and SQG screening levels. These analytes were attributable to the Site as they were also detected in source samples; in particular, lead was prevalent in the sediment samples. No SVOCs or explosives/propellant residue were detected at elevated concentrations in sediment samples. Based on sample results from the IA, it was determined that approximately 0.14 mile of wetland frontage had been impacted by the Site; though additional wetland frontage likely had been affected. The IA stated that the impact berms were the likely source of the TAL metals contamination.

The Site was added to the Confirmed and Suspected Contaminated Sites list in August 2010 after an Initial Investigation was performed by the KPHD. A Site Hazard Assessment (SHA) was conducted by KPHD in 2012. The SHA provided an overall Rank of 2 for the Site. The SHA concluded that the likely source of contamination resulting from operations at the KRRC is due to the metal in the bullets and shot from the firing of pistols, shotguns, and rifles. The majority of ammunition is comprised of lead. Bullets and shot may also contain metals such as copper, antimony, nickel, zinc, cadmium, and arsenic. The impact areas of the ranges at the Site consisted of sand berms. The rifle range impact area of 200 yards is an exposed soil face that is approximately 40 to 50 feet high. Although the owners of the Site had implemented a lead recovery program recent to the SHA, it is likely that lead remains in the berms and impact areas at the various ranges. In addition, bullet fragments and ricochets from the berms on the main pistol line likely landed in the wetlands behind the impact berm.

KPHD conducted an off-site sampling event on July 2, 2012, in a stream channel leading from the Site toward Chico Creek. Three water samples were collected, one at the waterway prior to entering the Site as background, and two downstream of the Site. The collected surface water samples were submitted to be analyzed for dissolved metals. The analytical results for surface

water samples collected off-site indicated dissolved metals were below MTCA screening levels for surface water.

2.5 Potential Sources

The potential sources of contamination are the shooting ranges and impact berms located on Site. COCs are potentially leaching from those sources and are being eroded into the nearby wetlands. Other potential source areas include bullets and bullet casings reportedly found inside the Newberry Hill Heritage Park that may be the result of misdirected or mismanaged firearm discharge from the Site or from historical discharge of firearms on Newberry Hill Heritage Park property. Bullets and bullet casings were reportedly found near the Wildlife Trail (KCPD, 2022), approximately 0.4 mile north of the KRRC sport pistol ranges. The Wildlife Trail is oriented between two streams of interest that drain the wetlands located north of the Site and the wetlands on Site; the streams confluence into one which drains into Wildcat Creek. The KPHD conducted site visits to the areas around the Site to determine if any of the bullets found in the Newberry Hill Heritage Park resulted from the discharge of firearms at the Site. Investigations identified both bullets and bullet casings found on the park property leading KPHD to conclude that shooting associated with the artifacts took place on park property and are therefore likely not attributed to the KRRC (KPHD, 2013).

3. FIELD ACTIVITIES AND ANALYTICAL PROTOCOL

This Site Reassessment effort included spring and fall season sampling events that occurred on May 21, 2021 and November 12, 2021, respectively. Co-located surface water and sediment samples were collected from the same off-site locations as previously collected by KPHD (KPHD, 2012), as well as an additional off-site location, in accordance with the SAP (WESTON, 2021a). Photographs of field activities are included in the Photograph Log (**Appendix A**).

3.1 Sampling Methodology

Sampling events were conducted following the satisfaction of prerequisite weather conditions resulting in at least 0.25 inch but less than 1.5 inches of rainfall as sampling following a rain condition presented the best opportunity to collect potential runoff from the Site. START conducted sampling activities on May 21, 2021 and November 12, 2021, following prerequisite weather conditions (rain) that had occurred earlier during the respective weeks. According to National Weather Service (NWS), rainfall totals in the area within the preceding 48 hours of the spring sampling event were reported at 0.38 inch and within the preceding 48 hours of the fall sampling event were reported at 0.67 inch (NWS, 2021).

Surface water and sediment sampling occurred in order from furthest downstream to upstream to eliminate sediment and contaminant disturbance in subsequent samples. GPS coordinates of each sample location were recorded during each sampling event. Those locations are recorded into a Scribe project database along with field data. The Scribe datasets have been published to Scribe.net (project ID 4408). Sampling locations are presented in **Figure 3**.

3.1.1 Sediment Sampling

Grab sediment samples were collected from three sample locations that corresponded to the previous sample locations (KRRC-3 through KRRC-5) (KPHD, 2012) and submitted for laboratory analysis for polycyclic aromatic hydrocarbons (PAHs) and TAL metals. Sediment samples were collected using dedicated disposable scoops from a depth interval of 0-to-6 inches bgs.

Sediment sample documentation was properly recorded, and samples were hand-delivered to EPA Region 10 Manchester Environmental Laboratory (MEL) in Port Orchard, Washington.

KRRC-3 through KRRC-5 are located on the stream that drains into Wildcat Creek that is referred to as Stream 2 in the Critical Areas Study (Talasaea Consultants, Inc. [Talasaea], 2011). The Stream 2 identifier for the stream will be adopted for the remainder of this report.

3.1.2 Surface Water Sampling

Surface water samples were collected by immersing the sample bottle several inches beneath the water surface with the sample container inverted, lowered to the approximate sample depth, and held at approximately a 45-degree angle with the mouth of the bottle facing downstream. Surface water samples were co-located to sediment samples and collected at the three target sample locations (KRRC-3 through KRRC-5) and submitted for laboratory analysis for PAHs, hardness, and total and dissolved TAL metals. In the field, samples collected for dissolved metals analyses were filtered using a 0.45-micron filter into sample containers and then preserved with nitric acid (HNO_3) to a pH of less than 2.

Surface water sample documentation was properly recorded, and samples were hand-delivered to the MEL.

3.1.3 Background Sediment/Surface Water Sampling

An off-site, co-located, and discrete background surface water and sediment grab sample was collected at sample location KRRC-2. The background sample was collected from an area presumably unaffected by activities associated with the Site. This area is located in one of three unnamed wetland-draining tributaries that drain into Stream 2. The west-most stream of interest and stream on which KRRC-2 is located will be referred to as Stream 2A for the remainder of this report. The background location was adjusted in the field based on appropriateness for source area-specific background use, accessibility, and seasonal availability of surface water for sample collection. Sediment and surface water background samples were collected following the same collection methods described for each field sample matrix and hand-delivered to the MEL. Data

was used to identify the background concentrations for comparison against downstream sediment/surface water samples.

3.1.4 Contribution Sediment/Surface Water Sampling

Contribution samples are used to identify whether unidentified sources of contamination are influencing attribution of contamination to the Site. Co-located discrete contribution surface water and sediment grab samples were collected from KRRC-01 and KRRC-06. KRRC-06 is an off-site location selected to capture any contaminant run-off from the reported location of the bullets and bullet casings found on Newberry Hill Heritage Park property into an unnamed wetland-draining stream located east of Stream 2A. This unnamed wetland-draining stream will be referred to as Stream 2B for the remainder of this report. KRRC-01 is an off-site sampling location that intercepts off-site drainage water before it enters the underground culvert that channels drainage water through the Site. The inlet to the culvert is located at its southern end, just north of Seabeck Highway (**Figure 2**). The culvert directs drainage water from south to north and outlets to the wetlands of interest. These wetlands drain into a stream that confluences with Stream 2A and 2B to form Stream 2, this stream will be referred to as Stream 2C for the remainder of this report. Sediment and surface water background samples were collected following the same collection methods described for each field sample matrix and hand-delivered to the MEL.

For this reason, KRRC-02 was selected as the background location. KRRC-01 and KRRC-06 are to be considered contribution sample locations.

3.1.5 Sample Nomenclature

In addition to the standard Region 10 MEL Sample ID format as assigned by the Region, sample nomenclature used the following to designate the location: KRRC for Kitsap Rifle and Revolver Club, followed by the sediment (SE##) or surface water sample (SW##) identifier, followed by an extra numerical value (#) if a sample is collected from an alternate upstream location. No modifiers were used to designate background samples. For example, KRRC-SW01 designates the surface water sample collected from the background location KRRC-01 at the Kitsap Rifle and Revolver

Club and KRRC-SE01-1 designates the sediment sample collected from the background location KRRC-01.

3.1.6 Analytical Methods

The primary potential COCs associated with the Site include PAHs and TAL metals, based on historic operations at the KRRC (E&E, 2011).

The total number of samples and analyses per matrix are summarized on **Table 3-1**.

Table 3-1 Sample and Analysis Summary

Analytical Parameters	Analytical Method	Number of Samples	Field Duplicates	Blanks	Total Samples to Lab ¹
Spring 2021 Sampling Event					
Sediment - PAHs	EPA Method 8270E-SIM	6	1	0	7
Sediment – Metals + Mercury	EPA Method 6010D/7471B	6	1	0	7
Surface Water -PAHs	EPA Method 8270E-SIM	5	1	0	6
Surface Water - Total/Dissolved Metals + Mercury	EPA Method 200.7/200.8/245.1	5	1	0	6
Surface Water - Hardness	Method SM 2340B/245.1	5	1	0	6
Fall 2021 Sampling Event					
Sediment – PAHs	EPA Method 8270E-SIM	8	1	0	9
Sediment – Metals + Mercury	EPA Method 6010D/7471B	8	1	0	9
Surface Water -PAHs	EPA Method 8270E-SIM	6	1	0	7
Surface Water - Total/Dissolved Metals + Mercury	EPA Method 200.7/200.8/245.1	6	1	0	7
Surface Water - Hardness	Method SM 2340B/245.1	6	1	0	7

Notes:

¹Total number of samples to the laboratory does not include Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples.
SIM selected ion monitoring

3.1.7 Deviations from SAP

During the March 21, 2021 sampling event, the KRRC-1 sample location was dry and only a sediment sample was collected.

During the November 12, 2021 sampling event, both the KRRC-2 background and KRRC-6 contribution sample locations were dry. Only sediment samples were collected from those locations. Two alternate sample locations: KRRC-2-1 and KRRC-6-1 (**Figure 3**) were identified in the field, upstream from the original sample locations, and were determined to be acceptable alternatives. KRRC-2-1 is considered to be a contribution sample location because of the distance from KRRC-2 and the physical barriers between KRRC-2 and KRRC-2-1. Though KRRC-2-1 and KRRC-6-1 are located upstream of KRRC-2 and KRRC-6 in Stream 2A and 2B, respectively, they are bisected by the Old Loop Road trail (KCPD, 2022). However, they continue to flow south and past the trail by way of two separate culverts buried beneath the trail, each approximately 2-feet wide. Field observations indicate that chains of open water wetlands and vegetative wetlands are connected and are drained by Stream 2A and 2B. It is likely that following the rainy season, the upstream wetlands will swell and cascade water downstream to other wetlands, and that KRRC-2 and KRRC-6 were without water during the fall sampling event because the upstream wetlands where KRRC-2-1 and KRRC-6-1 are located had not achieved swelling yet. KRRC-2-1 is located approximately 130 feet northwest from KRRC-2 and KRRC-6-1 is located approximately 1,170 feet northeast from KRRC-6. Co-located sediment and surface water samples were collected at the alternate locations.

3.2 Quality Assurance/Quality Control

Quality control (QC) checks for sample collection were evaluated by a combination of chain-of-custody protocols and laboratory quality assurance (QA) as prescribed in the sampling or analytical methods. QC samples (e.g., MS/MSD samples) at a frequency of one per 20 samples per media were collected during each field effort.

Data Quality Indicator (DQI) goals and QA objectives for measurement of analytical data (measurement performance criteria) are presented in the Program QAPP (WESTON, 2021b). The laboratory analytical results satisfied the project DQI goals.

The laboratory data were also reviewed for technical holding time compliance, blank samples contamination, laboratory control sample recovery, interference check sample recovery, duplicate sample analysis, MS/MSD sample analysis, and serial dilution performance. Sample-specific detail (including qualification of individual analyte results for associated samples) is provided in the respective Quality Assurance Memoranda (**Appendix B**).

The data results, as qualified, are ACCEPTABLE and can be used for all purposes specified in the SAP (WESTON, 2021a).

3.3 Investigative-derived Waste Management

Investigation-derived waste (IDW) generated during the sampling effort included dedicated sample equipment and personal protective equipment. Dedicated sample equipment and personal protective equipment were bagged at the end of the field event and disposed of in a dumpster located at the Region 10 EPA warehouse. No IDW remains at the Site.

4. SUMMARY OF ANALYTICAL RESULTS REPORTING AND BACKGROUND SAMPLING

4.1 Analytical Results Evaluation Criteria

Summary tables of analytical results are presented in **Appendix C**. All analytes detected above laboratory detection limits are in bold type; analytical results indicating significant/elevated concentrations of contaminants in target samples with respect to background concentrations are shown highlighted orange and in bold type.

As required by EPA Hazard Ranking System (HRS) guidance, the three times background concentration was calculated for each analyte using the detected laboratory result for surface water and sediment background samples. An Observed Release is documented when a hazardous substance is detected at a concentration equal to or greater than three times the detected background concentration and is attributable to the site. If a background concentration is not detected, then an Observed Release is documented when the sample concentration equals or exceeds the sample quantitation limit (SQL) of the background sample.

Results of laboratory samples analyzed as part of this investigation are also compared against the following regulatory benchmarks:

Sediment

- Washington Sediment Management Standards (SMS): Chapter 173-204 Washington Administrative Code (February 2013)

Surface Water

- Washington Water Quality Standards (WQS) 173-201A Washington Administrative Code (WAC), Table 240 – Toxic Substances Criteria: Aquatic Life – Fresh Water Acute and Chronic and Human Health – Fresh Water (December 2019).
- MTCA Cleanup Levels and Risk Calculation (CLARC) Surface Water Method B Cancerous and Non-Cancerous (February 2021).

Analytical results indicating concentrations of contaminants in target samples (**Appendix C**) above the regulatory benchmarks are shown highlighted yellow and in bold type.

The analytes aluminum, calcium, iron, magnesium, potassium, and sodium are common earth crustal elements. These elements will not be discussed in this report.

4.2 Background Samples

Background samples were collected for each of the sampled media. The sampled media includes sediment and surface water. Background samples were co-located; a sediment and a surface water sample were collected from the location, when possible. The background sample was collected from a location in an area expected to be unaffected by Site activities. Results for the appropriate background samples are found in the analytical results summary tables (**Appendix C**) for comparison against target results. Surface water and sediment samples collected from the KRRC-02 background location during the spring sampling event is used as the basis for the three times background criteria.

4.2.1 Background Sample Location

The background sample location KRRC-2 corresponds to the background sample location KRRC2 used in the KPHD SHA (KPHD, 2012). KRRC-2 is located in Stream 2A and located north of the Site and represents the quality of water entering the Site. This sample location was selected for background because the corresponding sample collected during the KPHD SHA indicated little to no contamination by TAL metals. In addition, the report that bullets and bullet casings were found in an area that drains towards Stream 2B and away from Stream 2A further affirmed KRRC-2 as a suitable background location.

4.2.2 Background Sample Results

4.2.2.1 *Background Sediment Sample Results*

KRRC-SE02 was collected during both the spring and fall sampling event. Concentrations of arsenic, barium, lead, and mercury detected in the fall sample from KRRC-SE02 significantly exceeded the concentrations of the same analytes in the spring sample KRRC-SE02. No analytes were detected at concentrations exceeding regulatory benchmarks in either the spring or fall samples.

Background sediment sample results indicated the presence of TAL metals (barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc) and mercury; PAHs were not detected.

The appropriate background sediment sample analytes are compared to target samples and are depicted on **Figure 4**. The sediment analytical data summary table is included in **Appendix C-1** and the full laboratory report can be found in **Appendix D**.

4.2.2.2 Background Surface Water Sample Results

KRRC-SW02 was only collected during the spring sampling event and serves as the designated background sample for comparison to target samples. The total concentration of arsenic in this sample exceeded the MTCA Surface Water Method B – Cancerous. Dissolved metals analysis did not yield concentrations exceeding any regulatory benchmarks.

Background surface water sample results indicated the presence of TAL metals (arsenic, barium, cadmium, copper, lead, manganese, and zinc). Mercury and PAHs were not detected.

A list of metals with detected concentrations that exceeded one or more regulatory benchmark in background surface water samples is presented in Table 4-1. The appropriate background surface water sample analytes are compared to target samples and are depicted on **Figure 5**. The surface water analytical data summary tables are included in **Appendix C-2 through C-14** and the full laboratory report can be found in **Appendix D**.

Table 4-1 Background Surface Water Sample Regulatory Benchmark Exceedances

Action Level	Analyte
MTCA Surface Water Method B – Cancerous	Arsenic (total)

4.3 Contribution Samples

Contribution samples were collected for each of the sampled media. The sampled media includes sediment and surface water. Contribution samples were co-located; a sediment and a surface water sample were collected from each location, where possible. The contribution samples were collected from locations where potential sources of contamination that may or may not relate to the Site might be captured. Results for the contribution samples are found in the analytical results summary tables (**Appendix C**) for comparison against background results.

4.3.1 Contribution Sample Locations

Four contribution sample locations are KRRC-1, KRRC-2-1, KRRC-6, and KRRC-6-1. Location KRRC-1 corresponds to the KRRC1 background sample location used in the KPHD SHA (KPHD, 2012). KRRC-1 is located east of the entrance to the KRRC, north of a concrete culvert that runs below Seabeck Highway. KRRC-1 was selected as a contribution sample location because the culvert is a point where off-site surface waters drain onto the shooting range. This surface water flow is channeled to another culvert that is located under the shooting range and directs flow from south to north, bypassing flow paths over the surface of the shooting range. This on-site culvert drains to an outfall located north of the shooting range that drains to the wetlands north of the Site. KRRC-6 was selected as an additional contribution location due to reports of bullets being found along a trail located east of Stream 2A. The topography of the area where the bullets were found suggests that surface water drainage direction likely flows east towards the Stream 2B. KRRC-2-1 and KRRC-6-1 are alternative contribution sample locations that are located upstream from KRRC-2 and KRRC-6, respectively. They were sampled because KRRC-2 and KRRC-6 were dry during the fall sampling event. KRRC-2/KRRC-2-1 is located on the Stream 2A tributary and KRRC-6/KRRC-6-1 is located on the Stream 2B tributary; both converges with 2C to form the main stream, Stream 2, that flows south and through to the target downstream sample locations (KRRC-3, KRRC-4, and KRRC-5).

4.3.2 Contribution Sample Results

4.3.2.1 Contribution Sediment Sample Results

Arsenic, lead, manganese, nickel, benzo(a)pyrene, and benzo(g,h,i)perylene were detected in KRRC-SE01 (spring sample) at concentrations significantly exceeding concentrations of the same analytes in spring background sediment sample KRRC-SE02; arsenic, barium, lead, and zinc were detected in KRRC-SE01 (fall sample) at concentrations significantly exceeding concentrations of the same analytes in spring background sediment sample KRRC-SE02. Nickel was detected in sample KRRC-SE01 in exceedance of the Washington SMS for Freshwater Sediment Cleanup Objective (SCO); it was not detected at concentrations significantly exceeding the background sample location.

KRRC-SE02-1 was only collected during the fall sampling event and upstream from KRRC-2. Concentrations of barium, cadmium, lead, mercury, and zinc detected in KRRC-SE02-1 significantly exceeded concentrations of the same analytes in the background sample KRRC-SE02. No analytes were detected at concentrations exceeding regulatory benchmarks in either the spring or fall samples.

KRRC-SE06 was collected during both sampling events. The concentration of barium in both samples and lead and mercury concentrations in the fall sample significantly exceeded the concentration of the same analytes in the spring sample KRRC-SE02.

KRRC-SE06-1 was only collected during the fall sampling event and upstream from KRRC-6. The concentration of nickel from KRRC-SE06-1 significantly exceeded the concentration of the same analyte in the spring sample KRRC-SE02 as well as the Washington SMS for Freshwater SCO.

KRRC-SE01 collected during the spring sampling event was the only sample with any detections of PAHs (benzo(a)pyrene and benzo(g,h,i)perylene). Spring sample concentration of benzo(a)pyrene significantly exceeded the concentration of the same analyte in the spring sample KRRC-SE02. No SMS exceedances were detected for these analytes.

A list of metals concentrations that exceeded one or more regulatory benchmarks in contribution sediment samples is presented in **Table 4-2**. Sediment sample exceedances are depicted on **Figure 4**. The sediment analytical data summary table is included in **Appendix C-1** and the full laboratory report can be found in **Appendix D**.

Table 4-2 Contribution Sediment Sample Screening Level Exceedances

Action Level	Analyte
Washington SMS for Freshwater SCO	Nickel
Three times background	Arsenic, barium, cadmium, lead, manganese, nickel, zinc, mercury

4.3.2.2 Contribution Surface Water Sample Results

KRRC-SW01 was only collected during the fall sampling event. The dissolved concentrations of copper and zinc in this sample significantly exceeded the concentrations of the same analytes in

the spring sample KRRC-SW02. The dissolved concentration of lead and zinc in this sample exceeded the Washington WQS for Surface Water Aquatic Life – Freshwater Chronic and the dissolved concentration of copper exceeded the Washington WQS for Surface Water Aquatic Life – Freshwater Chronic and Acute. Total metals analyses did not yield concentrations exceeding any regulatory benchmarks.

KRRC-SW02-1 was only collected during the fall sampling event. The dissolved concentration of arsenic and zinc in this sample significantly exceeded the concentration of the same analyte in the spring sample KRRC-SW02. The total concentration of arsenic in this sample exceeded the MTCA Surface Water Method B – Cancerous. The dissolved concentration of arsenic in this sample exceeded the MTCA Surface Water Method B – Cancerous and the dissolved concentration of lead exceeded the Washington WQS for Surface Water Aquatic Life – Freshwater Chronic.

KRRC-SW06 was only collected during the spring sampling event. The total concentration of mercury in this sample significantly exceeded the concentration of the same analyte in the spring sample KRRC-SW02. The total concentration of arsenic in this sample exceeded the MTCA Surface Water Method B – Cancerous.

KRRC-SW06-1 was only collected during the fall sampling event. The dissolved concentration of copper in this sample significantly exceeded the concentration of the same analyte in the spring sample KRRC-SW02. The dissolved concentration of lead exceeded the Washington WQS for Surface Water Aquatic Life – Freshwater Chronic and copper exceeded Washington WQS for Surface Water Aquatic Life – Freshwater Chronic and Acute. Total metals analysis did not yield concentrations exceeding any regulatory benchmarks.

A list of metals with detected concentrations that exceeded one or more regulatory benchmark in background surface water samples is presented in **Table 4-3**. Surface water sample exceedances are depicted on **Figure 5**. The surface water analytical data summary tables are included in **Appendix C-2 through C-14** and the full laboratory report can be found in **Appendix D**.

Table 4-3 Contribution Surface Water Sample Regulatory Benchmark Exceedances

Action Level	Analyte
MTCA Surface Water Method B – Cancerous	Arsenic (total, dissolved)
Washington WQS for Surface Water Aquatic Life – Freshwater Chronic	Copper (dissolved) Lead (dissolved) Zinc (dissolved)
Washington WQS for Surface Water Aquatic Life – Freshwater Acute	Copper (dissolved)
Three times background	Arsenic (dissolved) Copper (dissolved) Zinc (dissolved) Mercury (total)

5. SOURCE CHARACTERIZATION

The Site was not accessed at any time during the reassessment and therefore the potential source information has not been updated since the IA was published. The IA characterization of potential sources of contamination on-site are summarized below.

5.1 Source Description

This subsection presents a summary of the locations, analyses conducted, and analytical results of source samples collected during the IA, as well as comparisons to background concentrations. Details regarding the potential sources can be found in the IA (E&E, 2011).

5.1.1 Rifle Range Impact Berms

The rifle-range is 200-yards long, oriented southwest to northeast, and has 10 shooting benches. Impact berms are located at the 25, 50, 100, 150, and 200 yards from the shooting benches (**Figure 2**). However, the IA only targets the 150- and 200-yard impact berms for sampling. The volumetric calculation for each berm are as follows:

- 150-yard berm = 46.6 cubic yards
- 200-yard berm = 66.6 cubic yards

5.1.1.1 *Sample Locations and Results*

Four samples total were collected from the 150- and 200-yard berms; two samples from each berm. Each were analyzed for SVOCs and TAL metals.

Sample results indicated the presence of TAL metals (antimony, copper, and lead) and SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, and pyrene) at significant concentrations with respect to IA background concentrations. Both antimony and lead were detected at significant concentrations in all four samples. Significant SVOC concentrations were detected only in samples from the 150-yard impact berm.

5.1.2 Pistol Range Impact Berms

The pistol range is 50-yards long and oriented south to north. Impact berms are located at 25 and 56 yards from the firing line (**Figure 6**). The IA only targeted the 50-yard impact berm for sampling. The volumetric calculation for this berm is 664.4 cubic yards.

5.1.2.1 *Sample Locations and Results*

Four samples were collected from the 50-yard berm. Each sample was analyzed for SVOCs and TAL metals.

Sample results indicated the presence of TAL metals (antimony, arsenic, copper, lead, silver, and zinc) and SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene) at significant concentrations with respect to IA background concentrations. Antimony, arsenic, lead, and zinc were detected at significant concentrations in all four samples. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, and pyrene were detected at significant concentrations in all four samples.

5.1.3 Sport Pistol Range Impact Berms

Nine sport pistol ranges are located on the KRRC (**Figure 2**). These sport pistol ranges allow for 180-, 270- and 360-degree shooting. The north impact berms of sport ranges 1, 2 and 3 were targeted for IA sampling. The cumulative volumetric calculation for these berms is 3,283.3 cubic yards.

5.1.3.1 *Sample Locations and Results*

Six samples total were collected; two samples were collected from the north impact berm of each sport range. Each sample was analyzed for SVOCs and TAL metals.

Sample results indicated the presence of TAL metals (antimony, arsenic, copper, lead, and zinc) and SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene)

at significant concentrations with respect to IA background concentrations. Antimony, arsenic, copper, and lead were detected at significant concentrations in all six samples. Benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and pyrene were detected at significant concentrations in all six samples.

5.1.4 Area Outside of Ranges

One surface soil sample was collected outside of the active shooting areas to the north of the 100-yard line at the rifle range. The current stream, that flows below ground surface of the KRRC through two 24-inch culverts, once flowed above ground through the area. This location was sampled because the stream may have transported contamination to the targeted area and that vehicles traversing a road that runs through the rifle range may have also transported contamination to the targeted area.

5.1.4.1 Sample Location and Result

One sample was collected north of the rifle range. The sample was collected from the middle of the road that traverses the rifle range. No TAL metals or SVOCs were detected at significant concentrations with respect to IA background levels.

6. MIGRATION/EXPOSURE PATHWAYS AND TARGETS

6.1 Groundwater Pathway

In determining a score for the groundwater migration pathway, the HRS evaluates the following factors: (1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to groundwater; (2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and (3) the people (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on the number of people who regularly obtain their drinking water from wells that are located within 4 miles of the site. The HRS emphasizes drinking water usage over other uses of groundwater (e.g., food crop irrigation and livestock watering) because, as a screening tool, it is designed to give the greatest weight to the most direct and extensively studied exposure routes.

6.1.1 Geologic and Hydrogeologic Setting

The Site is located near the center of Kitsap County, which lies within the Puget Trough. The Puget Trough is a depression that extends over 200 miles in the north-south direction from Canada to the central area of western Oregon; it varies in width from 60 to 120 miles in the east-west direction between the Cascade Mountains to the east and the Olympic and Coast Range Mountains to the west (Raisz, 1965). The Puget Trough is an elongate large structural basin that formed due to the subduction of the Juan de Fuca plate beneath the North American Plate. The basin has been filled with marine sedimentary and volcanic deposits of Tertiary and earlier age. It has been partly filled by unconsolidated deposits of clay, silt, sand, gravel, and glacial till that were deposited by water and ice during the Pleistocene glacial epoch. The upper materials of the fill were deposited by ice and glacial melt water streams during the Vashon glaciation, during which time a large tongue of ice moved southward from British Columbia and Vancouver Island and partly filled the Puget Sound basin (Bretz, 1913). More recent fill was deposited by Holocene fluvial erosion of sediments (Jones, 1999).

Kitsap County lies on the northern portion of the Kitsap Peninsula, the largest peninsula in the Puget Sound region. The land area of Kitsap County consists of remnants of an upland plateau. The surface is composed of generally flat-topped rolling hills and ridges separated from one another by valleys. These plateau remnants rise to 400 to 600 feet and range in size from a few to several hundred square miles (E&E, 2011). The most prominent geologic features on the Kitsap Peninsula are the Wildcat Hills (Green and Gold Mountains), located in the center of the peninsula (Sceva, 1957).

The sediments described form the aquifer systems located on the Kitsap Peninsula. In general, sandy, gravelly sediments are conducive to aquifers, while the silty sediments act as aquitards.

6.1.1.1 Area Aquifers

Four main aquifers separated by five confining layers are identified on the Kitsap Peninsula (Kahle, 1998). Most recently, five effective aquifers have been identified, they are: Vashon recessional aquifer, Vashon advance aquifer, Sea-level aquifer, Glacio-marine aquifer, and Deep aquifer (Welch, Frans, and Olsen, 2014).

The Vashon group comprises of the recessional aquifer, the till confining unit, and the advance aquifer. The Vashon recessional aquifer is the youngest hydrogeologic unit on the Kitsap Peninsula. It is described as a thin, unconfined, and discontinuous aquifer that consists of sand, gravel, and silt, with lenses of silt and clay. Thickness of the unit ranges from less than 30 feet to about 120 feet; the average thickness is 22 feet. The Vashon advanced aquifer consists of well sorted sand, or sand and gravel, with lenses of silt and clay that typically underlie the confining layer. Most of the unit is unconfined but confined groundwater conditions are present where the unit is saturated fully and is overlain by the confining layer. It is a widely used aquifer. The altitude of the top of the unit ranges from 0 to more than 600 feet. The thickness ranges between 20 to 240 feet with an average thickness of 85 feet. 3,263 wells were used to determine the extent and thicknesses of the aquifers and confining layers of Vashon group (Welch, Frans, and Olsen, 2014). The Vashon group is likely the Shallow Aquifer referenced in the IA. The Vashon group is an important aquifer for both domestic and municipal water supplies. It is the source of baseflow to local streams. Due to the proximity to the surface and the number of wells drawing from the aquifer, it is susceptible to surface sources of contamination (E&E, 2011).

The IA refers to the Intermediate Aquifer to follow the Shallow Aquifer. The intermediate aquifer likely refers to two underlying aquifers, the Sea-level aquifer and the Glacio-marine aquifer and their associated confining and interbed units. The Sea-level aquifer is extensive, generally confined, and primarily consists of glacial sand and gravel, with silt interbeds. The top of the unit ranges from 300 feet above sea level to several hundred feet below sea level. Thickness ranges from 50 to 250 feet, average thickness is 84 feet. The Glacio-marine aquifer is a confined aquifer that ranges in composition from sand and gravel to silt with some shell fragments. Few wells draw from this unit because of its depth and lower permeability compared to the above aquifers. 3,374 wells were used to determine the extent and thicknesses of the aquifers and confining layers of the intermediate aquifer group (Welch, Frans, and Olsen, 2014).

The Deep aquifer is laterally extensive and confined but can be locally absent. It consists mostly of sand and gravel with silt interbeds. The altitude of the aquifer ranges from more than 200 feet below sea level to more than 900 feet below sea level. The aquifer thickness ranges between 50 and 350 feet, with an average of 128 feet. One hundred and eight-four (184) wells were used to determine the extent and thickness of the Deep aquifer and its confining layer (Welch, Frans, and Olsen, 2014).

6.1.1.2 Aquifer Characteristics

Aquifers with significant quantities of water are synonymous with aquifers composed of thick sequences of permeable sands and gravels that are in continuity with other extensive aquifers or sources of recharge. Geological characteristics indicating continuity between aquifers include similar elevations, stratigraphic position, and lithology. Hydraulic characteristics, which are a more reliable indicator of aquifer continuity, include water quality, water elevation, and parallel response to hydraulic stresses from pumping and recharge events and tidal and barometric pressure changes (E&E, 2011).

Based on lithology and water quality data, wells completed in the deep aquifer west of Dyes Inlet are in hydraulic connection. Similar water chemistry and lack of mineralization indicate that these wells may receive recharge water rapidly. In contrast, wells east of Dyes Inlet completed in the Deep aquifer exhibit much higher concentrations of dissolved minerals, indicating that recharge does not happen as rapidly and that the water is somewhat older (CDM, 2001; E&E, 2011).

6.1.1.3 Horizontal Groundwater Gradient

Groundwater elevations range from approximately 20 feet to over 300 feet above sea level. Groundwater typically flows horizontally from areas of recharge to areas of discharge. Groundwater flows radially off the Kitsap Peninsula to the Puget Sound and Hood Canal (Welch, Frans, and Olsen, 2014). Ground water flow near the Site is south-southwest (Kitsap Public Utility District [KPUD], 1997). The ground water gradient is shallow, ranging from 0.1 to 0.001 (CDM, 2001).

6.1.1.4 Aquifer Recharge Areas

Recharge to the shallow aquifer is controlled by factors such as quantity of precipitation, slope, soil permeability, and hydraulic conductivity of the underlying materials. Recharge to deeper aquifers is either by diffuse vertical ground water flow through aquitards with uniform permeability or localized vertical flow through areas of higher permeability known as hydraulic windows (KPUD, 1997; CDM, 2001; Welch, Frans, and Olsen, 2014). The Critical Aquifer Recharge Areas Category I and II map indicates that the soils around KRRC are highly permeable (Kitsap, 2017). Based on the map description, soils that have a relatively high permeability have a high infiltration potential. These soils may provide for groundwater recharge but also may enhance transfer of contaminants from the surface to ground water (E&E, 2011). For these reasons, the locations where surface soils are highly permeable and are considered Category II Critical Aquifer Recharge Areas (Kitsap, 2017).

6.1.2 Groundwater Targets

Community water systems are classified by the WAC as either Group A or Group B, which are defined as follows:

- Group A: (WAC 246-290). Group A water systems are systems having 15 or more service connections, regardless of the number of people served for at least 180 days a year; or systems serving an average of 25 or more people per day for greater than 180 days a year, regardless of the number of service connections. Group A water systems do not include systems serving fewer than 15 single family residences, regardless of the number of people.

- Group B: (WAC 246-291). Group B water systems serve fewer than 15 residential connections and fewer than 25 people per day; or 25 or more people per day fewer than 60 days per year. Group B water systems are public water systems that do not meet the definition of a Group A water system.

The Washington State Department of Health (WDOH) maintains records of all active public water systems. Public water systems, regardless of group designation, indicate the total number of wells in the system, number of connections, and total population served. A search of the WDOH Sentry Internet revealed the presence of 16 Group A community wells serving a total population of 7,051 within the 4-mile radius target distance limit (TDL) of the Site (WDOH, 2022). There are no Group B wells within the 4-mile radius TDL. Lastly, the Site is not located within a well head protection area. The number of community drinking water wells and associated populations within the 4-mile radius by distance ring are presented in **Table 6-1** and a 4-mile map is presented in **Figure 7**.

Table 6-1 Drinking Water Populations by Distance Ring – Group A Wells

Distance Ring (miles)	Total Number of Wells Within Distance Ring	Population Served by Wells Within Distance Ring ¹
0 - 0.25	0	10
0.25 - 0.5	0	32
0.5 - 1	0	119
1 - 2	4	568
2 - 3	5	4,194
3 - 4	7	2,128
Total	16	7,051

¹Rounded up to nearest whole number

In addition, based on a search of the Washington State Department of Ecology's (Ecology) water well log database, a total of 566 domestic drinking water wells are present within a 4-mile radius of the Site (Ecology, 2022). The average number of people per household for Kitsap County, Washington is 2.48 (United States Department of Commerce [DOC], 2021). Based on this value, it is estimated that approximately 1,404 people use drinking water from a domestic well source within the 4-mile TDL. Drinking water populations by distance ring are presented in **Table 6-2**. Ground water within the 4-mile radius is not used for irrigation of five or more acres for commercial food crops or commercial forage crops, watering of commercial livestock, as an ingredient in commercial food preparation, as a supply for commercial aquaculture, or as a supply for a major or designated water recreation area.

Table 6-2 Water Purveyors within Target Distance

Water Company Name	Total Wells in the System	Total Population Served	Groundwater/Surface Water Percentages	Wells Contributing >40% to the System	Number of Wells within 4 Miles	Additional Water System Information
Silverdale Water District	15	56,266	No surface water intakes	None	4	Two contribute an unknown capacity. Five emergency wells.
Green Mountain Acres	3	20,665	No surface water intakes	1	1	Two emergency wells.
El Dorado Hills	3	383	No surface water intakes	1	1	Two emergency wells.
Erland Point Water Company	3	2,317	No surface water intakes	2	2	One emergency well.
Hoot Ridge	3	54	No surface water intakes	1	2	Two emergency wells.
Newbeck	1	0	No surface water intakes	1	1	Transient non-community well. 53 non-residents served.
Newberry Hill	3	133	No surface water intakes	1	1	Two emergency wells.

Source: WDOH, 2022

6.1.3 Groundwater Pathway Conclusion

No groundwater samples were collected and a release of hazardous substances from the Site to groundwater is not documented. There is a potential for hazardous substances in soils to migrate to the groundwater aquifer. An on-site well that was installed on March 24, 2010, well tag ID BAT972, was completed at 358 feet bgs and groundwater was encountered at 349 feet bgs. Water purveyors with groundwater production wells located within 4 miles of the Site include the Silverdale Water District, Green Mountain Acres, El Dorado Hills, Erland Point Water Company, Hoot Ridge, Newbeck, and Newberry Hill systems.

6.2 Surface Water Pathway

To determine the score for the surface water pathway, the HRS evaluates the following: (1) the likelihood that sources at a Site actually have released, or potentially could release, hazardous substances to surface water (e.g., streams, rivers, lakes, and oceans); (2) the characteristics of the

hazardous substances that are available for a release (i.e., toxicity, persistence, bioaccumulation potential, and quantity); and (3) the people or sensitive environments (targets) that actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on drinking water intakes, fisheries, and sensitive environments associated with surface water bodies within 15 miles downstream of the Site.

Contaminated soils on the Site are susceptible to erosion by surface water into the unnamed stream that drains the adjacent wetlands. The stream drains south into Wildcat Creek, then into Chico Creek, which flows into the Dyes Inlet. The probable point of entry (PPE) for the Site is located at 47.608036°, -122.748934°. The PPE was selected because it is a probable location where wetland drainage and drainage from the shooting range area coalesce into Stream 2 that drains towards Wildcat Creek (**Figure 8**). The surface water migration pathway TDL begins at the PPE and extends downstream for 15 miles (**Figure 9**).

6.2.1.1 Overland Pathway

With the exception of man-made impact berms, there is little topographic relief at the Site. However, the Site does generally slope down to the southwest and during times of heavy rain or flooding, surface water can travel off-site. A Type F stream enters the southeastern corner of the Site and has been routed through an unpermitted underground pipe and extends underground to the north, where it outfalls into the wetland located north of the Site. During times of flooding, flood waters from the Site are able to come into direct contact with waters of the northern wetland located on the Site (E&E, 2011). Once surface water leaves the northern wetland located on the Site, it flows south 0.7 mile by way of an unnamed stream to a confluence with Wildcat Creek. From the confluence, surface water flows southwest for approximately 1.9 miles before joining Chico Creek and flowing an additional 2.4 miles into Chico Bay. The 15-mile TDL includes Dyes Inlet, Phinney Bay, Oyster Bay, Mud Bay, and Ostrich Bay and extends through the Port Washington Narrows, terminating approximately at Illahee State Park to the north, Point Glover to the east, and at the end of Sinclair Inlet to the southwest (**Figure 9**).

There are approximately 45.6 miles of wetland frontage present along the 15-mile TDL. Wetland frontage by surface water body is presented in **Table 6-3**.

Table 6-3 Wetland Frontage by Surface Water Body

Surface Water Body	Length (miles)
Chico Bay	1.59
Chico Creek	0.37
Dyes Inlet	6.81
Mud Bay	1.06
Ostrich Bay	4.43
Oyster Bay	3.01
Phinney Bay	2.00
Port Orchard Bay	9.66
Port Washington Narrows	6.50
Rich Passage	2.77
Sinclair Inlet	5.92
Wildcat Creek	1.46
Total:	45.56

The average annual flow rate for Wildcat Creek was not available. The average annual flow rate for Chico Creek is 35.9 cubic feet per second based on data collected between 1947 and 1974; more recent data was collected between 2011 and 2012, and between the drier months of July and October (United States Geological Survey [USGS], 2012). During that period, the lowest flowrate recorded was 0.61 cubic feet per second on October 12, 2012 and the highest flowrate recorded was 5.80 cubic feet per second on July, 8, 2011. The Chico Creek Watershed is presented in **Figure 10**. Depths in Puget Sound within the 15-mile TDL range from one foot to 210 feet (DOC, 2019). Dyes Inlet, Phinney Bay, Oyster Bay, Ostrich Bay, the Port Washington Narrows, and Sinclair Inlet are considered moderate-depth ocean zones. No depths were given for Mud Bay, which fits the definition of coastal tidal waters (EPA, 1990). Average annual precipitation in the vicinity of the site is 45.12 inches, measured at Bremerton, Washington (Western Regional Climate Center [WRCC], 2022). The shooting range is not located in a floodplain (Federal Emergency Management Agency [FEMA], 2010). Portions of the wetlands located northwest of the shooting range is designated a Zone A flood area. A Zone A flood area is defined as areas subject to inundation by the 1-percent-annual-chance flood. Based on FEMA maps, the Site is not located within a flood zone; however, the Site is known to have flooded in December 2007 and December 2010 (E&E, 2011).

6.2.2 Surface Water Targets

6.2.2.1 *Drinking Water Targets*

Surface water is not used as a drinking water source within the 15-mile TDL for the Site; nor is it useable for drinking water purposes. Additionally, surface water is not used for irrigation of five or more acres of commercial food crops or commercial forage crops, watering of commercial livestock, as an ingredient in commercial food preparation, or as a major or designated water recreation area.

6.2.2.2 *Human Food Chain Targets*

Sport Harvest

Sport fishing is known to occur within the 15-mile TDL. Sport catch harvest data were obtained through a public records search from the WDFW (WDFW, 2021). The most recent data available were for calendar year 2019. Sport fish catch data are reported by catch reporting area. The TDL is located within catch reporting Marine Area 10, which encompasses the waters south of a line projected from Apple Cove to Edwards Point, and north of a true east-west line projected through the north tip of Vashon Island (WDFW, 2021). START estimates that approximately 10.5 percent of catch reporting Marine Area 10 is located within the 15-mile TDL.

Sport harvest data are presented as the number of fish harvested. To calculate the total pounds of fish harvested within the TDL, START multiplied the number of fish harvested in catch reporting Marine Area 10 by the percentage of catch reporting Marine Area 10 located within the 15-mile TDL (10.5 percent). START then multiplied the number of fish harvested within catch reporting Marine Area 10 by the average weight of each fish species. Sport harvest data, by fish species, are presented in **Table 6-4**.

Table 6-4 2019 Marine Area 10 Sport Catch Data by Fish Species

Fish Species	Number Harvested from Area 10	Number Harvested from Area 10 x 10.5%	Average Pounds per Fish	Pounds Harvested
<i>Salmonidae</i>				
Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	3,522.00	369.81	22	8,135.82
Coho Salmon (<i>Oncorhynchus kisutch</i>)	28,512.00	2993.76	22	65,862.72
Pink Salmon (<i>Oncorhynchus gorbuscha</i>)	7,564.00	794.22	4	3,176.88
Chum Salmon (<i>Oncorhynchus keta</i>)	251.00	26.355	9	237.20
Bottom/Other Fish				
Copper Rockfish (<i>Sebastes caurinus</i>)	9.00	0.945	4.8	4.54
Lingcod (<i>Ophiodon elongatus</i>)	127.00	13.335	7	93.35
Greenlings (<i>Hexagrammidae</i>)	1.00	0.105	2	0.21
Misc. Flatfish	16,596.00	1742.58	2	3,485.16
Sanddabs (<i>Citharichthys</i>)	11,070.00	1162.35	1	1,162.35
Soles (<i>Soleidae</i>)	622.00	65.31	2	130.62
Starry Flounder (<i>Platichthys stellatus</i>)	18.00	1.89	2	3.78
Cabezon (<i>Scorpaenichthys marmoratus</i>)	4.00	0.42	4	1.68
Other Sculpins (<i>Scorpaenichthys</i>)	59.00	6.195	10	61.95
Perches (<i>Perca</i>)	22.00	2.31	1	2.31
Spiny Dogfish (<i>Squalus acanthias</i>)	123.00	12.915	20	258.30
Total fish				82,616.86

Sport shellfish harvest is also reported for catch reporting Marine Area 10. With the exception of oysters (whose harvest is reported by number harvested), shellfish harvest is reported by pounds harvested. Shellfish harvest for the percentage of catch reporting area 10 located within the 15-mile TDL is calculated by multiplying the total pounds harvested from catch reporting Marine Area 10 by the percentage of catch reporting Marine Area 10 falling within the 15-mile TDL.

Table 6-5 Marine Area 10 Sport Catch Data by Shellfish Species

Shellfish	Pounds Harvested from Area 10	Pounds Harvested from Area 10 x 10.5%
Dungeness Crab (<i>Metacarcinus magister</i>)	44,562	4,679.01
Spot Prawns (<i>Pandalus platyceros</i>)	10,608	1,113.84
Total Shellfish		5,793

Commercial and Subsistence Harvest

Non-tribal and Tribal commercial fish and shellfish harvesting occurs within the 15-mile TDL. Tribal ceremonial and subsistence (C&S), non-commercial, fish and shellfish harvesting also occurs within the 15-mile TDL. These catches are reported as pounds harvested. Non-tribal and Tribal commercial fish and shellfish data were obtained through a request for public records from the WDFW (WDFW, 2022). The State of Washington and the tribes co-manage State fisheries. Hence, the EPA consulted the Suquamish Tribe Fisheries on their catch counts to determine accurate catch counts within the 15-mile TDL. Commercial harvest is separated into several statistical areas according to the species harvested. Commercial salmon catch data are reported by catch reporting area. Parts of Marine Area 10 and Area 10E are located within the 15-mile TDL. START estimates that approximately 10.5 percent of catch reporting Area 10 and 50 percent of catch reporting Area 10E falls within the 15-mile TDL. To calculate the total pounds caught within the 15-mile TDL, START multiplied the total pounds caught in each area by respective percentage of statistical area (10.5 and 50 percent) falling within the 15-mile TDL. Tribal harvests only occur in Area 10E. Commercial harvest of Chinook salmon was restricted in Area 10 during the 2019 season (WDFW, 2019). Commercial and non-commercial harvest of salmon and other fish within the 15-mile TDL for each species is presented in **Table 6-6**.

Commercial and C&S harvest of shellfish also occurs within the 15-mile TDL. Shellfish harvest within the 15-mile TDL is reported for Marine Fish-Shellfish Management Catch Reporting Area 26C. Geoduck (*Panopea generosa*), Manila clams (*Venerupis philippinarum*), Dungeness crab (*Metacarcinus magister*), Butter clams (*Saxidomus gigantea*), and Varnish clams (*Nuttallia obscurata*) are harvested from catch reporting area 26C. START estimates that 50 percent of catch reporting area 26C falls within the 15-mile TDL. The total pounds of shellfish harvested from

catch reporting area 26C are calculated the same way as above. Native little neck clams (*Leukoma staminea*), Manila clams, and Pacific oysters (*Crassostrea gigas*) have historically been harvested from Southern Puget Sound Region Aquaculture Management Catch Reporting Area 42A. Catch reporting area 42A is wholly contained within the 15-mile TDL. Catch reporting data for area 42A could not be obtained from the WDFW and is not able to be factored in this assessment. WDFW did not comment on why records for area 42A were not provided but it is likely due to ongoing water quality issues that have resulted in a ban on shellfish harvesting in the Dyes Inlet (Dunagan, 2021). Combined subsistence and commercial shellfish harvest within the 15-mile TDL for each species is presented in **Table 6-7**.

Table 6-6 Marine Area 10, 10E and 26C Commercial and Subsistence Catch Data by Fish Species

Fish Species	Pounds Harvested	Catch Reporting Area	% Statistical Area	Pounds Harvested within TDL
<i>Salmonidae</i>				
Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	36	10	10.50	3.78
Coho Salmon (<i>Oncorhynchus kisutch</i>)	486,067	10	10.50	51,037.04
Chum Salmon (<i>Oncorhynchus keta</i>)	2,268	10	10.50	238.14
Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	119,144	10E	50.00	59,324.50
Coho Salmon (<i>Oncorhynchus kisutch</i>)	394	10E	50.00	197.00
Chum Salmon (<i>Oncorhynchus keta</i>)	3,895	10E	50.00	1,947.50
Bottom/Other Fish				
Silver Smelt (<i>Oncorhynchus keta</i>)	161	26C	50.00	80.50
Total fish				112,828.46

Table 6-7 Marine Area 26C Commercial and Subsistence Catch Data by Shellfish Species

Shellfish	Pounds Harvested	Catch Reporting Area	% Statistical Area	Pounds Harvested within TDL
Dungeness Crab (<i>Metacarcinus magister</i>)	15,708	26C	50.00	7,854
Geoduck (<i>Panopea generosa</i>)	352,863	26C	50.00	176,431.50
Manila Clams (<i>Venerupis philippinarum</i>)	366,597	26C	50.00	183,298.50
Butter Clams (<i>Saxidomus gigantea</i>)	4,587	26C	50.00	2,293.50
Varnish Clams (<i>Nuttallia obscurata</i>)	1,706	26C	50.00	853
Total Shellfish				370,731.50

6.2.2.3 Environmental Targets

Sensitive environments are present within the 15-mile TDL. Migratory pathways and feeding areas critical for maintenance of anadromous fish species within streams or coastal tidal waters in which the fish spend extended periods of time. Wildcat Creek and Chico Creek are designated critical habitats for steelhead trout (*Oncorhynchus mykiss*), an endangered species protected under the Endangered Species Act (ESA). Additionally, the Puget Sound is a designated critical habitat for other endangered species protected under ESA that include Bocaccio rockfish (*Sebastodes paucispinis*), Yelloweye Rockfish (*Sebastodes ruberrimus*), Chinook salmon (*Oncorhynchus tshawytscha*), and Killer Whales (*Orcinus orca*) (DOC, 2021).

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) species list includes one aquatic species (one fish) that may be present in the study area that is considered federal or state listed threatened, endangered, or sensitive species; however, none of the species listed have a federally designated Critical Habitat within or overlapping the Site or would potentially be impacted by conditions at any downstream locations (USFWS, 2022a). The aquatic species potentially associated with the study area include Bull Trout (*Salvelinus confluentus*) (USFWS, 2022b). Bull Trout were not surveyed or observed during the sampling activities.

Table 6-8 Threatened and Endangered Aquatic Species

Species	Status	Type of Habitat/Sensitive Environment
Steelhead Trout (<i>Oncorhynchus mykiss</i>)	Threatened (Federal)	Gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Steelhead trout that migrate to the ocean. Distinct population segments include major rivers in the Western U.S. ¹
Bocaccio Rockfish (<i>Sebastodes paucispinis</i>)	Endangered (Federal)	Western Gulf of Alaska and Alaska Peninsula to Punta Blanca, central Baja California. Found at water depths ranging from 66 to 1,578 feet but tend to be most abundant from 312 to 738 feet in depth. ²
Yelloweye Rockfish (<i>Sebastodes ruberrimus</i>)	Threatened (Federal)	Umnak Island, AK to northern Baja California. Deep water fish that range in depth from 36 feet to 1,800 feet. ³
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	Threatened (Federal)	Most chinook spawn in large rivers such as the Columbia and Snake, although they will also use smaller streams with sufficient water flow. Chinook spawn on both sides of the Cascade Range, and some fish travel hundreds of miles upstream before they reach their spawning grounds. ⁴
Killer Whale (<i>Orcinus orca</i>)	Endangered (Federal) Endangered (State)	Killer whales are found in all oceans. They are most abundant in colder waters like Antarctica, Norway, and Alaska, they are also found in tropical and subtropical waters. ⁵
Bull Trout (<i>Salvelinus confluentus</i>)	Threatened (Federal)	Native to Washington, Oregon, Idaho, Nevada, Montana and western Canada. Bull trout require stable stream channels, clean spawning and rearing gravel, complex and diverse cover, and unblocked migratory corridors. ⁶

¹ <https://www.fisheries.noaa.gov/species/steelheadtrout#:~:text>All%20wild%20steelhead%20trout%20hatch,return%20to%20freshwater%20to%20spawn>.

² <https://wdfw.wa.gov/species-habitats/species/sebastodes-paucispinis#desc-range>

³ <https://wdfw.wa.gov/species-habitats/species/sebastodes-ruberrimus#desc-range>

⁴ <https://wdfw.wa.gov/species-habitats/species/oncorhynchus-tshawytscha#desc-range>

⁵ <https://www.fisheries.noaa.gov/species/killer-whale>

⁶ <https://www.fws.gov/species/bull-trout-salvelinus-confluentus>

Freshwater emergent wetland and freshwater forested/shrub wetlands have been identified along the majority of the creeks within the watershed and wetlands have been identified adjacent to potential sources north of the impact berms (**Figure 8**).

6.2.3 Surface Water and Sediment Sample Results and Locations

Co-located surface water and sediment samples were collected from sample locations during spring and fall sampling events.

Sediment samples were compared to three-times the selected background concentration to determine if an Observed Release from the Site is documented. Sediment sample results are also compared to Washington SMS regulatory benchmarks. Sediment sample comparison tables are presented in **Appendix C**. Sediment sample results that exceed these established criteria are presented in **Figure 4**.

Surface water sample results were compared to three-times the selected background concentration to determine if an Observed Release from the Site is documented. Surface water results are also compared to MTCA and Washington WQS regulatory benchmarks. Surface water comparison tables are presented in **Appendix C**. Surface water sample results that exceed these established criteria are presented in **Figure 5**.

The three target sample locations are KRRC-3, KRRC-4, and KRRC-5. All three sample locations correspond to the locations used during the SHA by KPHD (KPHD, 2012). The sample locations are downstream from background sample locations and the PPE from the Site. KRRC-3 is located west of the Site and is located just north of a concrete culvert where the unnamed stream flows south and under Seabeck Highway. KRRC-4 is located downstream and less than 400 linear feet southwest of KRRC-3. KRRC-5 is located downstream and less than 200 linear feet southwest of KRRC-4. Both KRRC-4 and KRRC-5 are located south of Seabeck Highway and are both located northwest of and within 520 feet of the nearest residence.

6.2.3.1 Sediment Sample Results

Analytes detected in KRRC-SE03 collected during the spring sampling event in exceedance of three times background concentration include barium, lead, and manganese; lead and manganese

were detected at three times the background concentration in the sample collected during the fall sampling event. Nickel was detected in the fall sample at a concentration exceeding the Washington SMS – Freshwater Sediment SCO.

No analytes were detected in exceedance of three times background concentrations in the KRRC-SE04 sample collected during the spring sampling; barium and manganese were detected in exceedance of three times background concentration during the fall sampling.

Lead was detected in KRRC-SE05 samples collected during both spring and fall sampling event in exceedance of the three times background concentration.

A list of metals with detected concentrations that exceeded three times background and/or one or more regulatory benchmark in target sediment samples is presented in **Table 6-9**. Sediment sample exceedances are depicted on **Figure 4**. The sediment analytical data summary tables are included in **Appendix C** and the full laboratory report can be found in **Appendix D**.

Table 6-9 Sediment Sample Screening Level Exceedances

Action Level	Analyte
Washington SMS – Freshwater Sediment SCO	Nickel
Three times background	Barium, lead, and manganese

6.2.3.2 Surface Water Sample Results

Analytes detected in KRRC-SW03 collected during the spring sampling event in exceedance of three times background for dissolved concentrations include arsenic, copper, lead, and manganese. The dissolved concentration of copper was detected at three times background during both sampling events. The total concentration of arsenic exceeded the MTCA Surface Water Method B – Cancerous in samples collected from KRRC-SW03 during both sampling events; the dissolved concentration of arsenic exceeded the MTCA Surface Water Method B – Cancerous in the sample collected during the spring sampling event. The dissolved concentration of lead exceeded the Washington WQS for Surface Water Aquatic Life – Freshwater Chronic in the sample collected during the spring sampling event.

Analytes detected in KRRC-SW04 collected during the spring sampling event in exceedance of three times background for dissolved concentrations include lead, manganese, and zinc; analytes detected in exceedance of three times background during the fall sampling event include copper, lead, and zinc. Dissolved metal analysis on KRRC-SW04 indicates the lead concentration exceeded Washington WQS for Surface Water Aquatic Life – Freshwater Chronic in the sample collected during both sampling events.

No analytes were detected in exceedance of three times background in the KRRC-SW05 sample collected during the spring sampling; however, the dissolved concentration of lead was detected in exceedance of three times background during the fall sampling event.

A list of metals with detected concentrations that exceeded three times background and/or one or more regulatory benchmark in target surface water samples is presented in **Table 6-10**. Surface water sample exceedances are depicted on **Figure 5**. The surface water analytical data summary tables are included in **Appendix C** and the full laboratory report can be found in **Appendix D**.

Table 6-10 Surface Water Sample Screening Level Exceedances

Action Level	Analyte
MTCA Surface Water Method B – Cancerous	Arsenic (dissolved, total)
Washington WQS for Surface Water Aquatic Life – Freshwater Chronic	Lead (dissolved)
Three times background	Arsenic, copper, lead, and zinc (dissolved); Manganese (dissolved, total)

6.2.4 Surface Water Pathway Conclusions

An observed release to the unnamed stream, referred to as Stream 2, that flows into Wildcat Creek is documented based on surface water and sediment sampling analytical results. Analytes included in the observed release are arsenic, copper, lead, manganese, zinc. Barium was detected at significant concentrations above background and also exceeds barium concentrations in IA source samples.

One IA source sample exceeded the barium concentration detected in the IA background sample (E&E, 2011). Barium concentrations in target sediment samples collected during this study significantly exceed background KRRC-SE02/SW02. The same concentrations exceed IA background sample barium concentration and all IA soil sample barium concentrations. Therefore, barium concentrations observed in the target sediment samples are not attributable to the sources on-site.

Arsenic was detected in IA pistol range, sport range, and range floor soil samples at concentrations significantly higher than the IA background sample. Arsenic was also detected in surface water samples at concentrations three times the designated background sample during this study. Therefore, an observed release of arsenic into surface water pathways is attributable to the sources on-site.

Copper was detected in IA rifle range, pistol range, and sport range soil samples at concentrations significantly higher than the IA background sample. Copper was also detected in surface water samples at concentrations three times the designated background sample during this study. Therefore, an observed release of copper into surface water pathways is attributable to the sources on-site.

Lead was detected in all IA soil samples collected at concentrations significantly higher than the IA background sample. Lead was also detected in surface water and sediment samples at concentrations three times the designated background sample during this study. Therefore, an observed release of lead into surface water pathways is attributable to the sources on-site.

Manganese was detected in IA pistol range soil samples at concentrations significantly higher than the IA background sample. Manganese was also detected in surface water and sediment samples at concentrations three times the designated background sample during this study. Therefore, an observed release of manganese into surface water pathways is attributable to the sources on-site.

Zinc was detected in IA rifle range, pistol range, sport range, and range floor soil samples at concentrations significantly higher than the IA background sample. Zinc was also detected in surface water samples at concentrations three times the designated background sample during this

study. Therefore, an observed release of zinc into surface water pathways is attributable to the sources on-site.

Human food chain targets harvested an estimated 195,445 pounds of fish and 376,523 pounds of shellfish in 2019 within the 15-mile TDL (WDFW, 2022). Wildcat Creek and Chico Creek are designated critical habitats for steelhead trout (*Oncorhynchus mykiss*). The Puget Sound is designated critical habitat for Bocaccio Rockfish (*Sebastodes paucispinis*), Yelloweye Rockfish (*Sebastodes ruberrimus*), Chinook salmon (*Oncorhynchus tshawytscha*), and Killer whales (*Orcinus orca*) (DOC, 2021). Chico Creek is also a habitat for other native salmonids that include Chum salmon, Coho salmon, and Cutthroat trout. Freshwater emergent wetland and freshwater forested/shrub wetlands have been identified along the majority of the creeks within the Chico Creek watershed (USFWS, 2022b)

6.3 Soil Exposure and Air Pathway

For the targets component of the soil and air pathways evaluation, the principal threat is related to populations that are regularly present on and within 200 feet of surficial soil contamination. Nearby populations are also evaluated and include populations that are regularly present within 1 mile for soil exposure, or 4 miles for the air pathway. The four populations that receive the most weight are residents, students and daycare attendees, workers, and terrestrial sensitive environments. Terrestrial sensitive environments are areas that are established or protected by State or Federal Law (examples include, but are not limited to, National Parks, threatened or endangered species habitat, wilderness areas, and wildlife refuges). The attractiveness and accessibility of the site for recreational purposes is considered in the soil pathway threat, but it is not weighted as heavily as the other non-transient uses, such as residents and workers.

The targets evaluation is primarily concerned with identifying and evaluating the human population, as well as terrestrial and sensitive environments, within 4 miles of the source.

6.3.1 Soil Exposure and Air Pathway Targets

The total population of Bremerton is 43,505 (U.S. Census Bureau, 2020). The closest permanent resident, based on a review of Google Earth aerial imagery, appears to be approximately 800 feet

south of the KRRC northern impact berms; south of Seabeck Highway. There are no schools or daycare centers present within 200 feet of a potential source. The estimated population of full-time residents based on 2020 census data living within a 4-mile radius of the Site is listed in the **Table 6-11** below (U.S. Census Bureau, 2020).

Table 6-11 Population within 4-Mile Radius

Radius	Population
0 – 0.25	10
0.25 – 0.50	32.2
0.50 – 1.0	119.4
1.0 – 2.0	713.9
2.0 – 3.0	2,707.3
3.0 – 4.0	4,934.4
Total Population	8,517.2

The Site is located in a rural and unincorporated area roughly 6.5 miles northwest of Bremerton, Washington. The Site is bounded to the north and west by the Newberry Hill Heritage Park. The park is a popular public space with trails that attract locals and recreationalists. The park provides multiple recreational activities including hiking, biking, trail running, and bird-watching.

The potential source areas are located on-site and fenced in and provides adequate restriction to recreationists and trespassers. The primary targets are property owners, recreationists, trespassers, and wildlife. The potential source areas are not physically restricted from interaction with the environment.

The USFWS IPaC species list includes three different terrestrial species (three birds) that may be present in the study area that are considered federal or state listed threatened, endangered, or sensitive species; however, none of the species listed have a federally designated Critical Habitat within or overlapping the Site or would potentially be impacted by conditions at any downstream locations (USFWS, 2022a). The species potentially associated with the study area include the Marbled Murrelet (*Brachyramphus marmoratus*), Steaked Horned lark (*Eremophila alpestris*

strigata), and Yellow-billed Cuckoo (*Coccyzus americanus*) (USFWS, 2022a). None of the aforementioned species were surveyed or observed during the sampling activities.

Table 6-12 Threatened and Endangered Terrestrial Species

Species	Status	Type of Habitat/Sensitive Environment
Marbled Murrelet (<i>Brachyramphus marmoratus</i>)	Threatened (Federal) Endangered (State)	Coniferous forests in Washington, Oregon, and California. ¹
Steaked Horned lark (<i>Eremophila alpestris strigata</i>)	Threatened (Federal) Endangered (State)	In Washington, prairie and grassland south of Puget Sound, coastal beaches, dredge spoil islands and sparsely vegetated shoreline sites on the lower Columbia River. ²
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	Threatened (Federal) Endangered (State)	Wooded habitats with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. ³

¹<https://www.federalregister.gov/documents/2016/08/04/2016-18376/endangered-and-threatened-wildlife-and-plants-determination-of-critical-habitat-for-the-marbled>

²<https://wdfw.wa.gov/species-habitats/species/eremophila-alpestris-strigata>

³<https://ecos.fws.gov/ecp/species/3911>

Freshwater emergent wetland and freshwater forested/shrub wetlands have been identified along the majority of the creeks within the watershed and wetlands have been identified adjacent to potential sources north of the impact berms (Figure 8).

6.3.2 Soil Exposure and Air Pathway Conclusion

The Site has been closed and prohibited from discharge of firearms or permitted operation of a shooting range since December 2016. Though not observed or documented during sampling activities, a conservative projection includes limited traffic occurring on Site associated with archery and air gun activities. The public is highly unlikely to come in contact with on-site

contaminated soils. The air pathway is not considered in this assessment due to the nature of the COCs and the wooded and rural geography of areas near the Site.

7. SUMMARY AND CONCLUSIONS

This Site Reassessment effort was conducted to address data gaps that exist in the IA that was triggered in response to a citizen's petition for a Preliminary Assessment.

Seasonal sampling was conducted near the Site on May 21, 2021 and November 12, 2021 following prerequisite rainfall weather conditions to determine potential migration of contaminants off-site. Co-located surface water and sediment samples were collected at eight different locations during each sampling event, weather permitting.

Previous investigations indicate that the sources of contamination are soils associated with on-site shooting range features such as impact berms and range floors.

To document an observed release, background samples, contribution samples, and potential target area samples were collected for surface water and sediment. Background samples were collected from multiple upstream locations. Soil, sediment, and surface water samples collected from on-site locations were collected during the previous IA.

Sample results collected during this site reassessment yield analyte concentrations exceeding three times background including arsenic, copper, lead, manganese, and zinc in surface water samples and barium, lead, and manganese in sediment samples. Detected concentrations of arsenic, copper, lead, manganese, and zinc can be attributed to on-site sources which include rifle range, pistol range, and sport range.

The following factors impact the HRS values for the Site, specifically the surface water migration pathway:

- An observed release from the Site to the surface water pathway has been documented.
- Critical habitat for four federally protected species and habitats used by five recognized threatened species.
- Sport, commercial, and subsistence fish and shellfish catch/harvest areas located downstream from the Site. 2019 catch records indicate a combined sport, commercial, and subsistence fish and shellfish harvest of 571,969 pounds. No catch records were provided for catch area 42A which is 100% within the 15-mile TDL.
- 45.56 miles of wetlands are present along the within the 15-mile TDL.

In addition, exceedances of Washington SMS - Freshwater SCO, MTCA Surface Water Method B – Cancerous, Washington WQS for Surface Water Aquatic Life – Freshwater Chronic, Washington WQS for Surface Water Aquatic Life – Freshwater Acute were detected in off-site samples.

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FIGURES



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Imagery
Task Order No.:
68HE0721F0041-00

Legend:

- Site Location

0 1 2 Miles



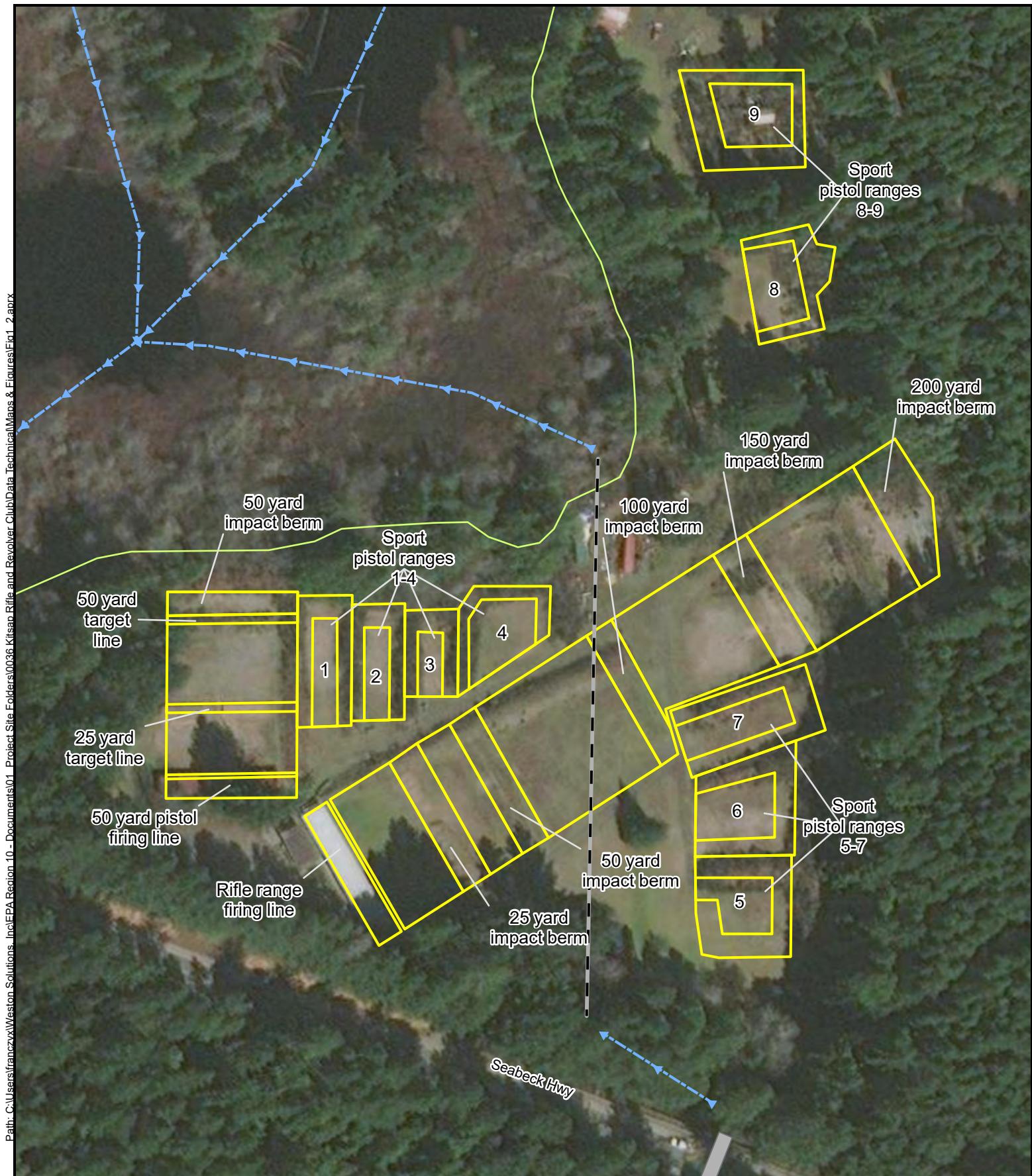
EPA Region 10



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START V

FIGURE 1
SITE VICINITY MAP
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA

T ã 2022



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Imagery
Site Features: Ecology and Environment, Inc. 2011
Task Order No.:
68HE0720F0160-08



0 125 250 Feet

Legend:

- Culvert
- Site Features
- Underground Culvert
- Flow Line
- Wetland Perimeter



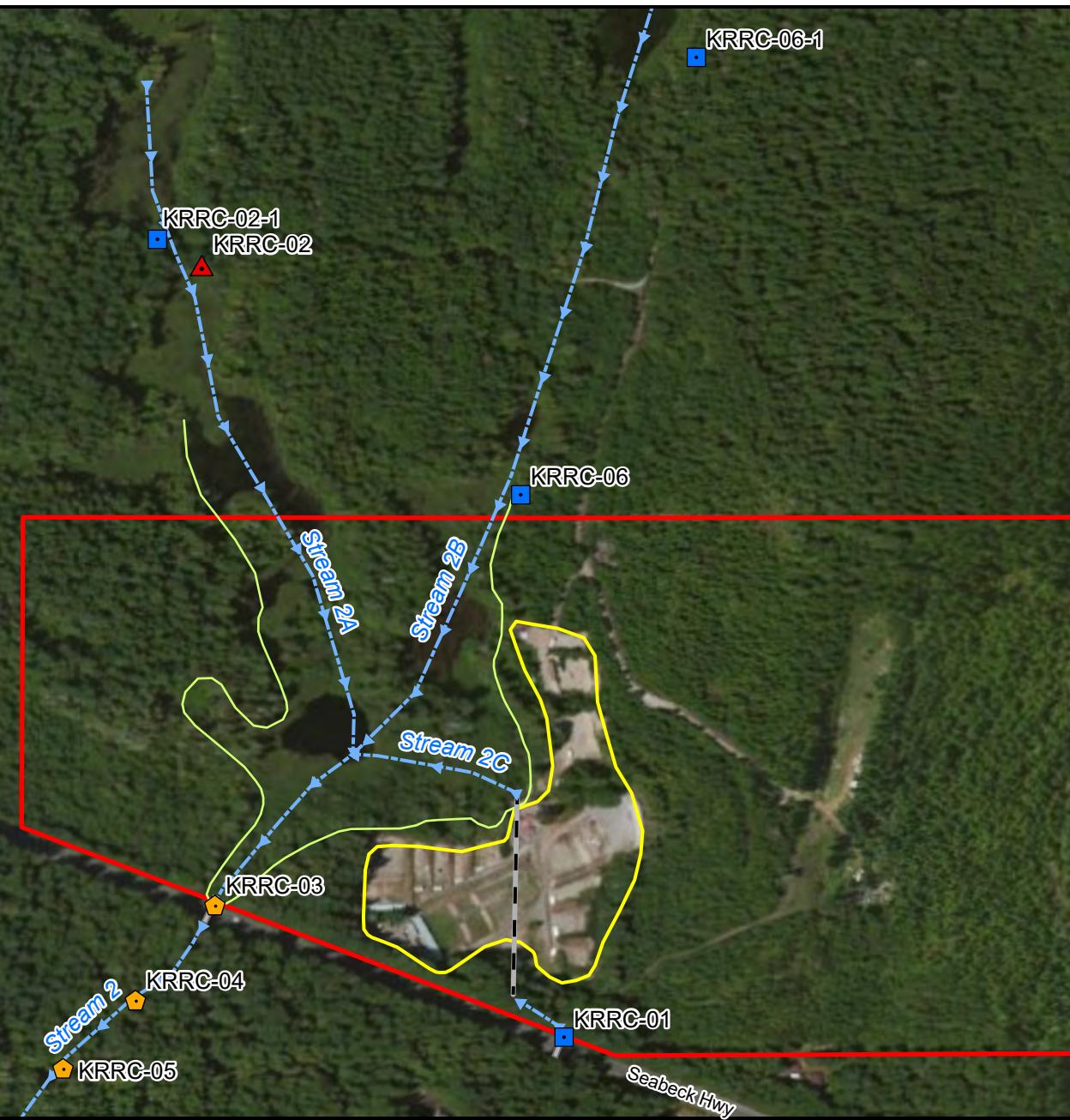
EPA Region 10



Weston Solutions Inc.
START V

FIGURE 2
SITE AREA MAP
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA

T ð 2022



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere

Source:
Background: ESRI World Imagery

Task Order No.:
68HE0720F0160-08



0 250 500 1,000
Feet

Legend:

- ▲ Background Sample Location ▶ Flow Line
- ◆ Sample Location ■ Wetland Perimeter
- Contribution Sample Location ■ Culvert
- Underground Culvert ■ Parcel Boundary

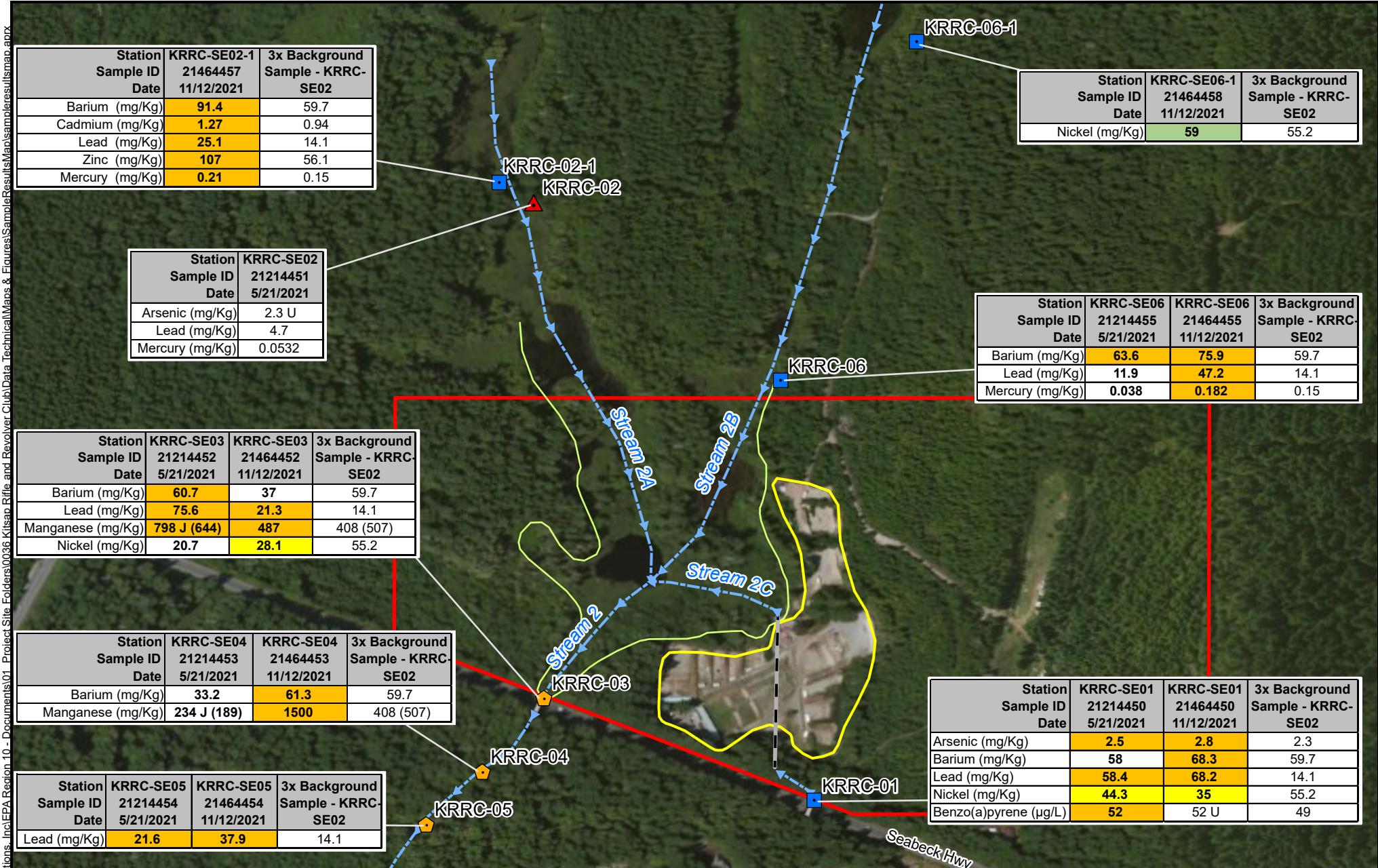


EPA Region 10

WESTON
SOLUTIONS
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START V

FIGURE 3
SAMPLE LOCATION MAP
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA

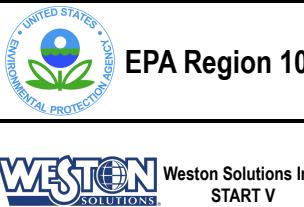
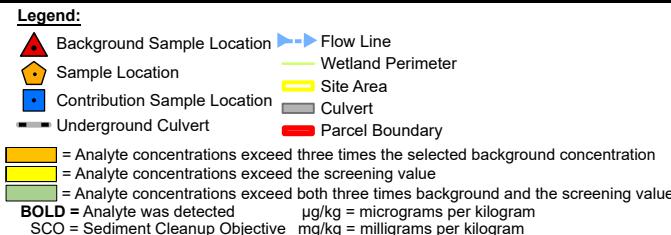
May 2022



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Source: Background: ESRI World Imagery
Task Order No.: 68HE0720E0160_08

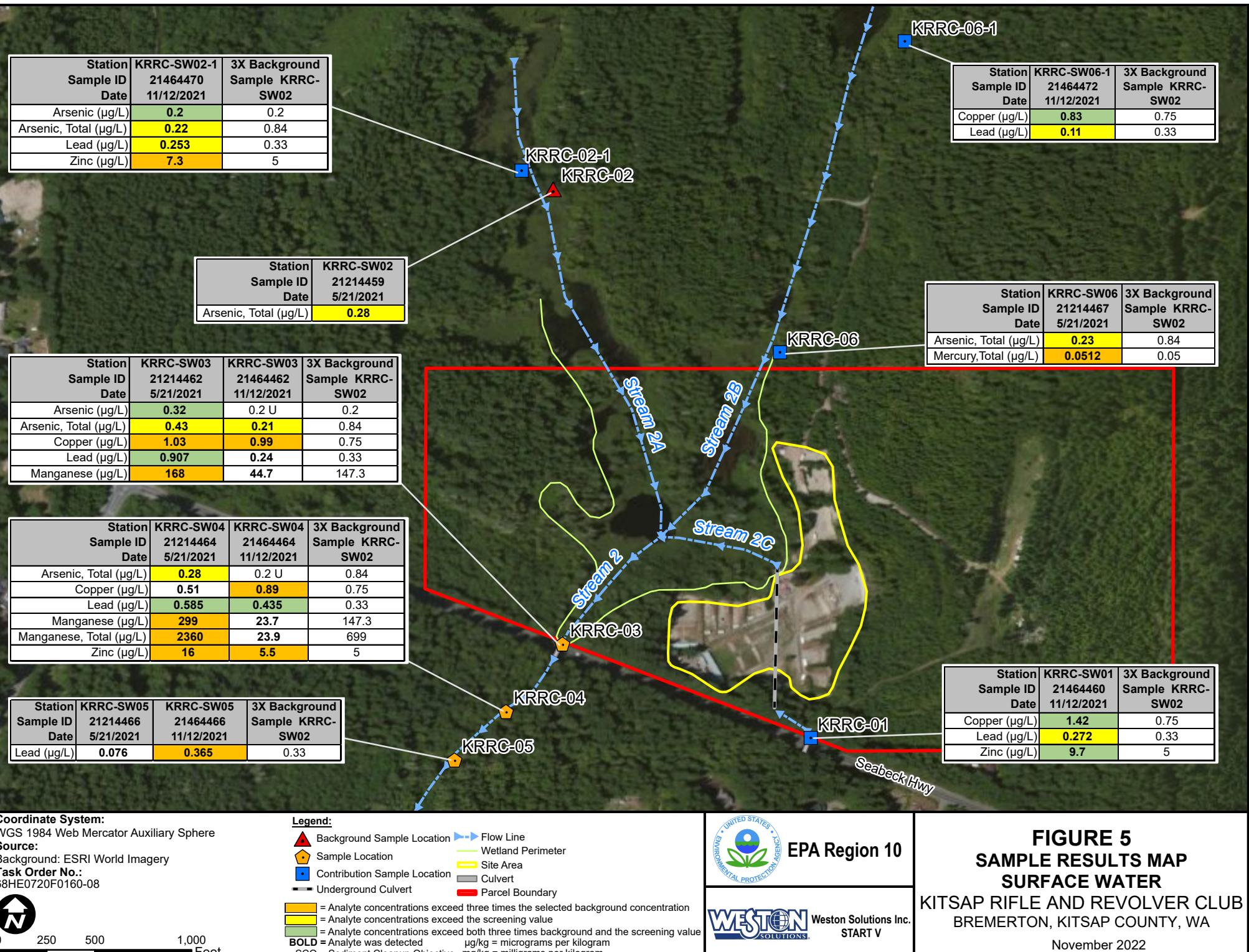
N

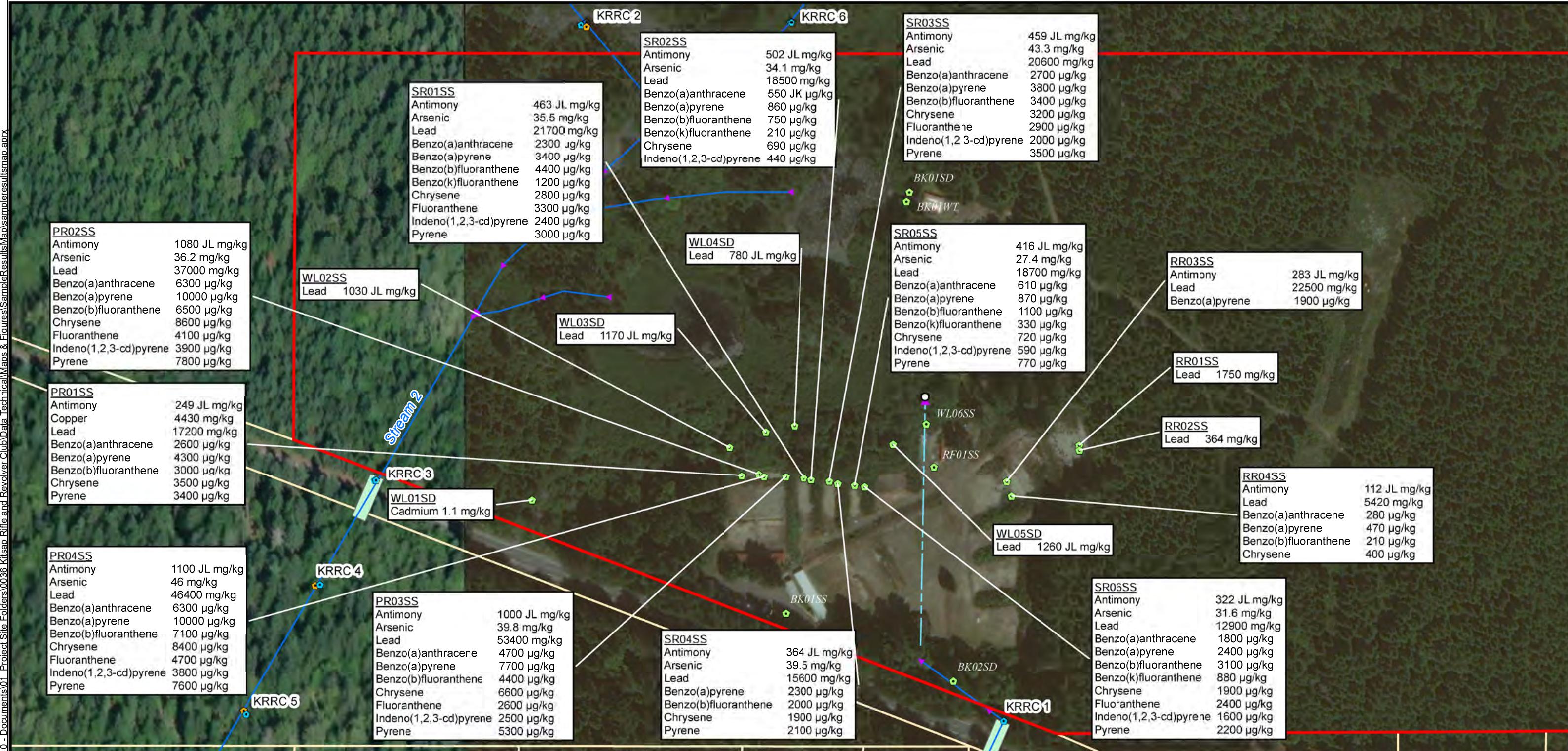
Me: C:\ 0 250 500 1,000 East



**FIGURE 4
SAMPLE RESULTS MAP
SEDIMENT**

November 2022



Legend

- Previous Sample Location 2011
- Previous Sample Location 2012
- Proposed Sample Location
- Probable Point of Entry
- Non-Permitted F Stream to Underground Piping
- F Stream
- Culvert
- Property Boundary

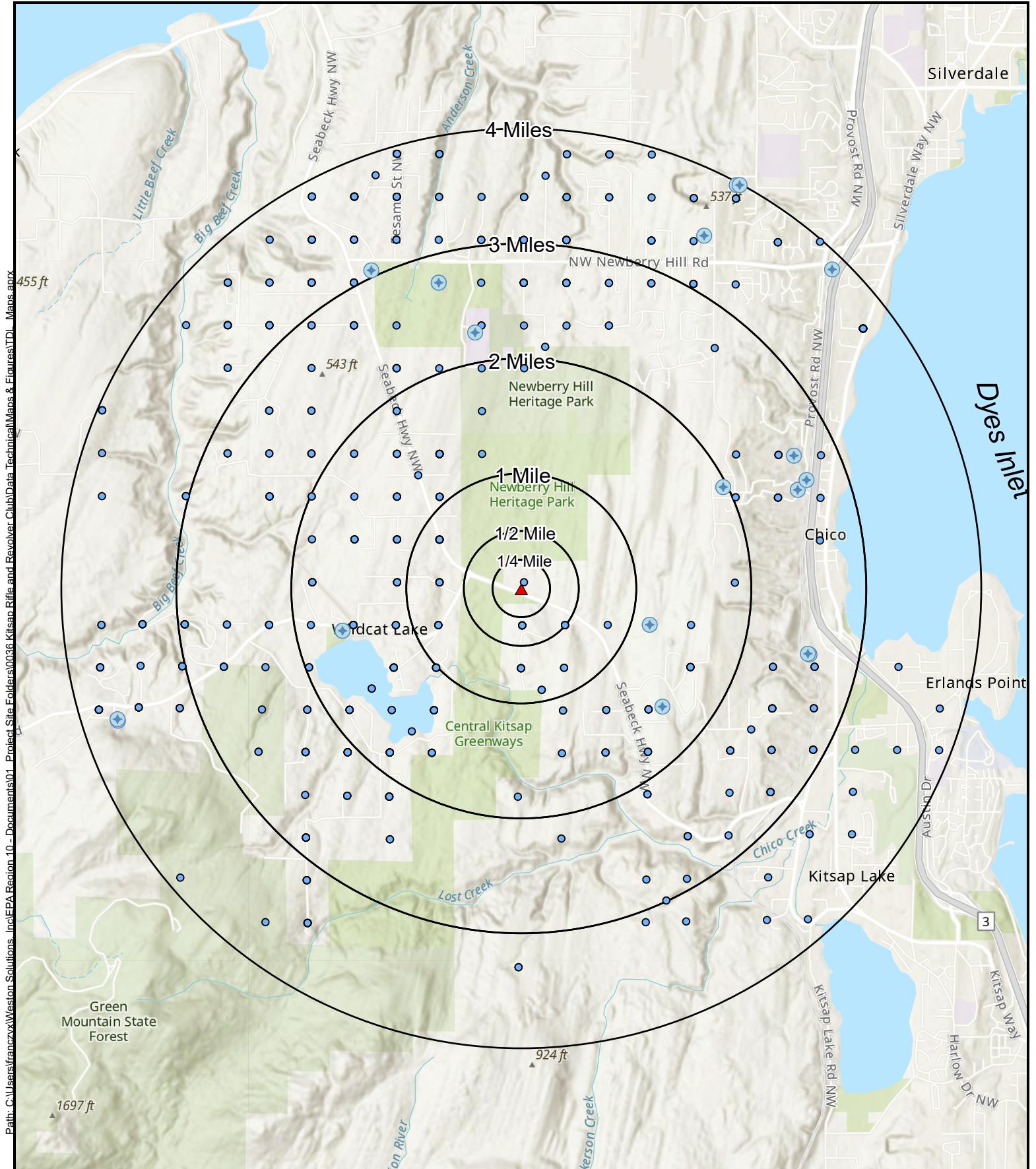


EPA Region 10

 Weston Solutions Inc.
START V

FIGURE 6
PREVIOUS INVESTIGATION EXCEEDANCES MAP
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA

November 2022



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Topographical Map
Task Order No.:
68HE0720F0160-08



0 1 2 Miles

Legend:

- ▲ Probable Point of Entry (PPE)
 - Domestic Groundwater Well
 - ◆ Community Groundwater Well
- Domestic well data from WDOE
Community well data from WDOH



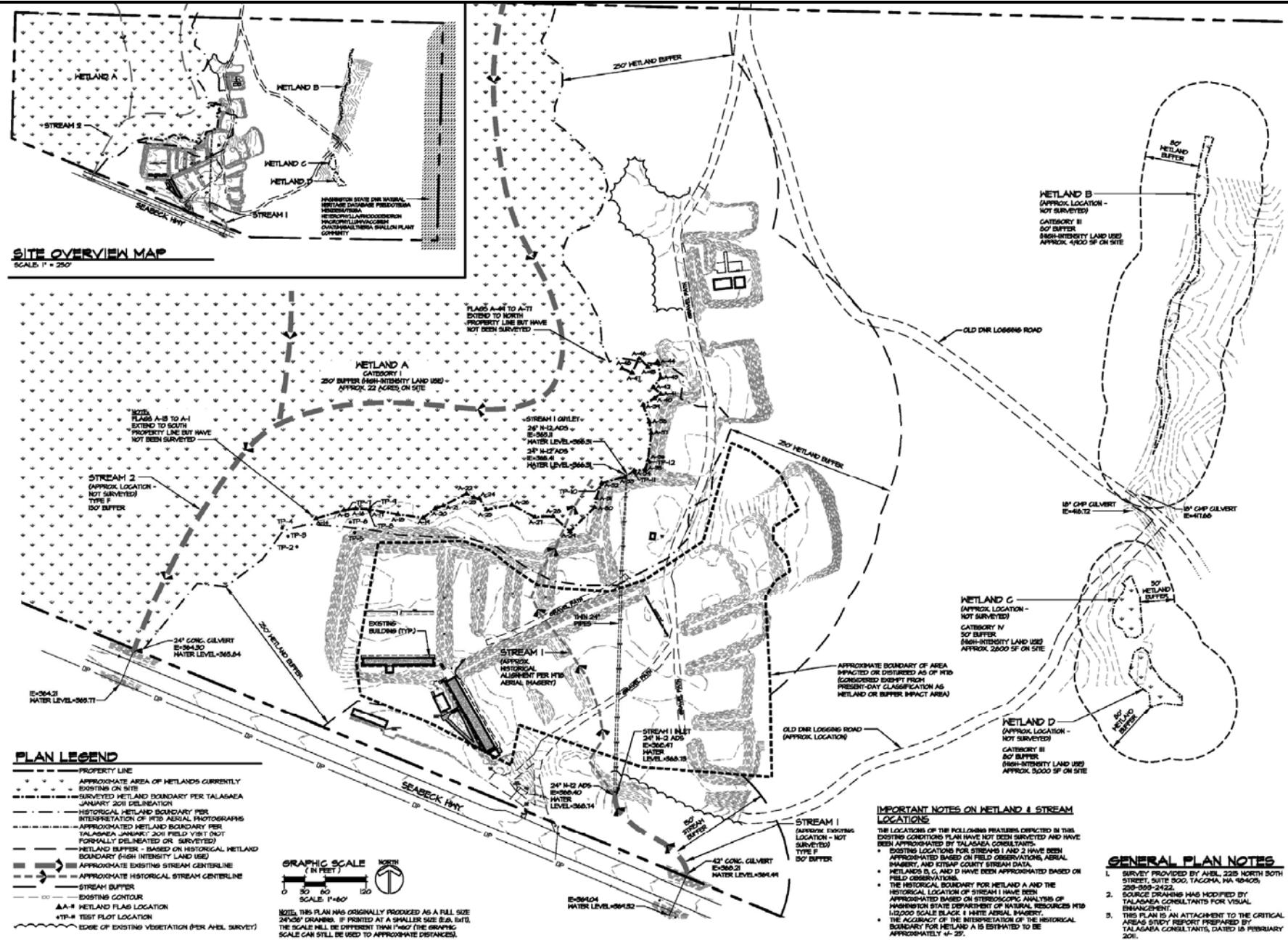
EPA Region 10



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FIGURE 7
GROUNDWATER PATHWAY
4-MILE RADIUS MAP
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA

T ð 2022



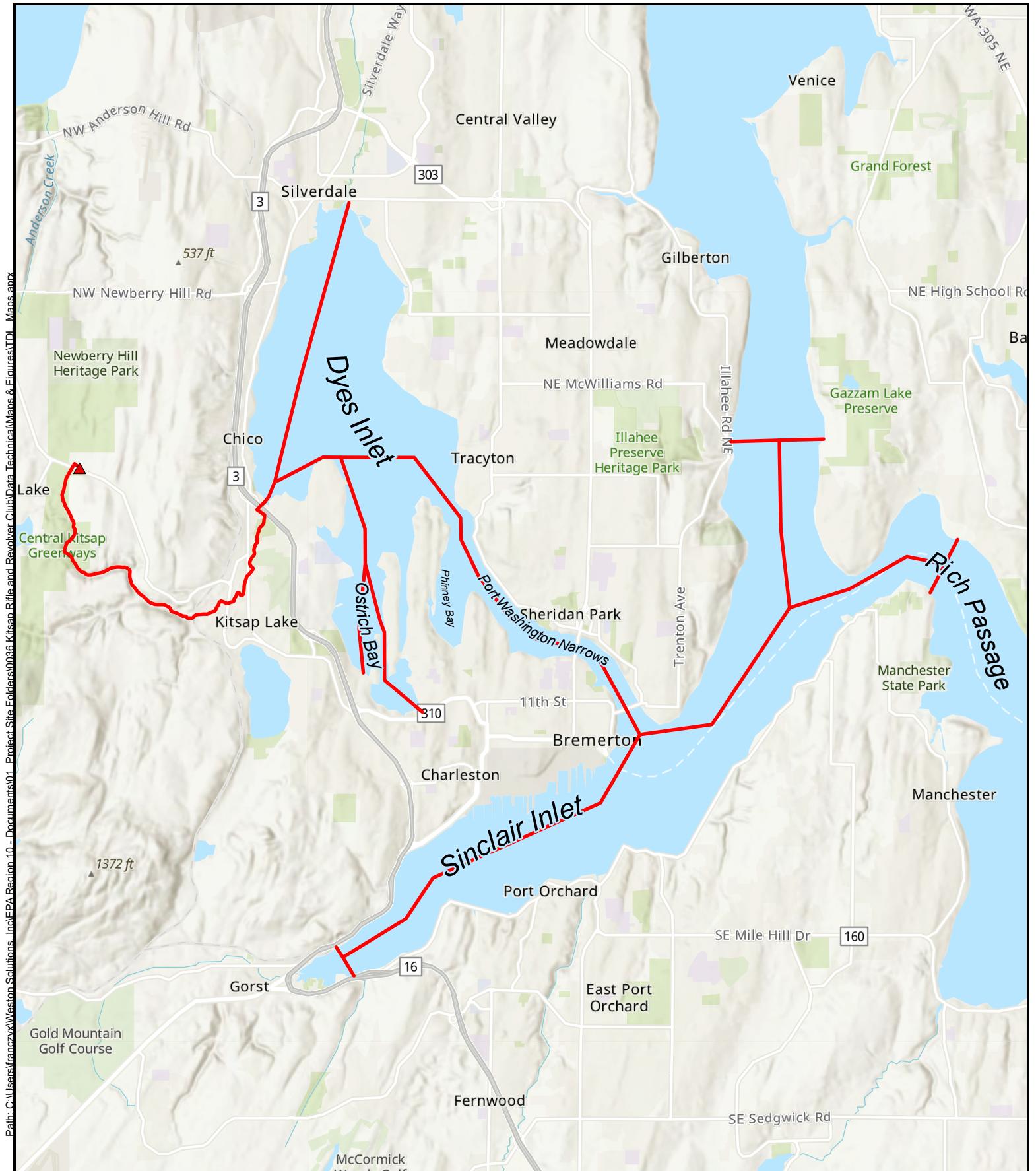
Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere

Source:
Ecology and Environment, Inc. 2011
Talasaea Consultants, Inc. 2011

Task Order No.:
68HE0720F0160-08



FIGURE 8
CRITICAL AREAS MAP
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Topographical Map
Task Order No.:
68HE0720F0160-08



0 1.5 3 Miles

Legend:
▲ Probable Point of Entry (PPE)
— 15 Mile Target Distance Limit (TDL)

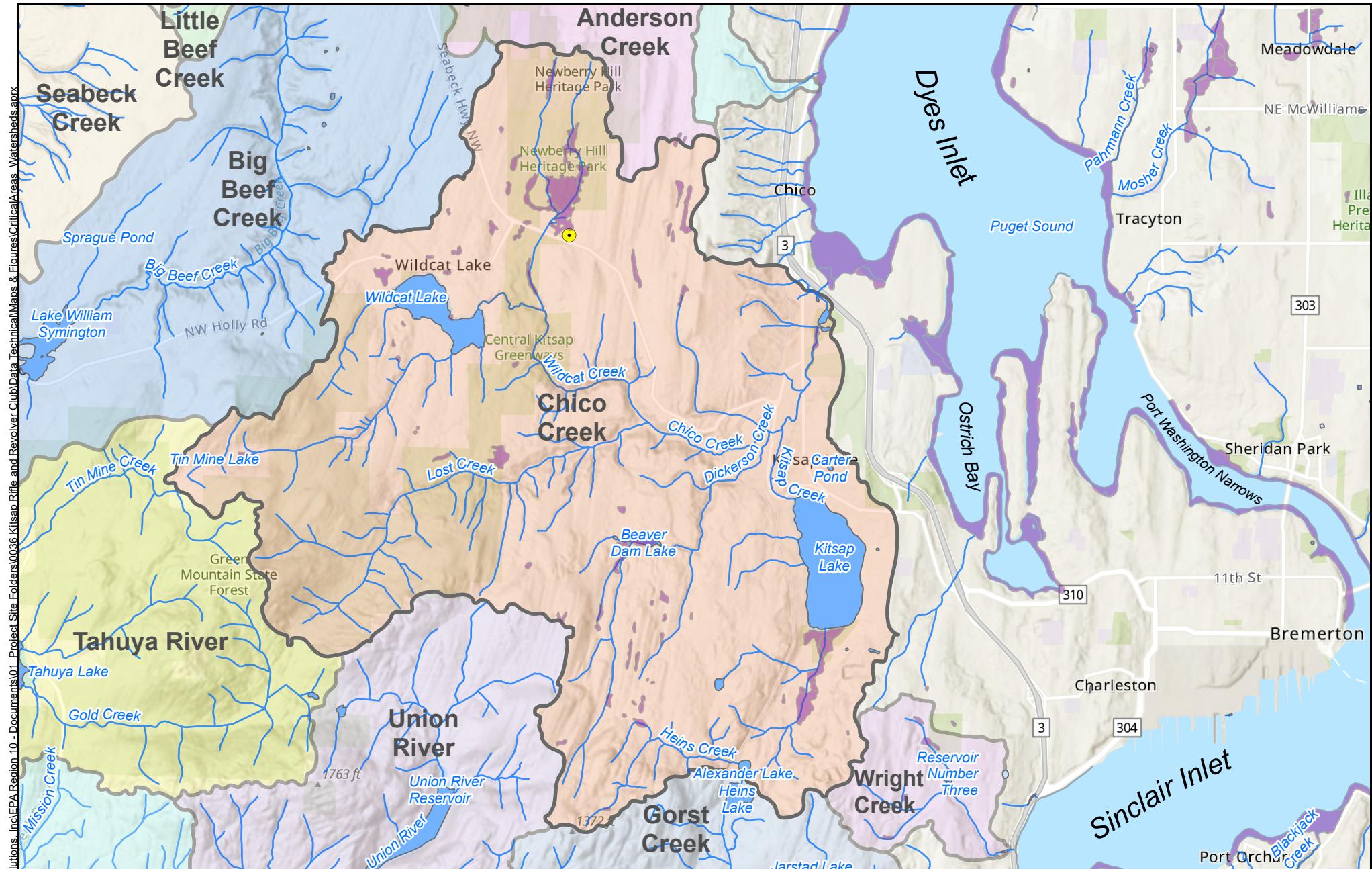


EPA Region 10



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FIGURE 9
SURFACE WATER PATHWAY
15-MILE
TARGET DISTANCE LIMIT MAP
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA
May 2022



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere

Source:
Background: ESRI World Topographic Map

Task Order No.:
68HE0720F0160-08



0 1.5 Miles

Legend:

- Site Location
- Wetlands
- ▬ Watershed Boundary

Watershed Boundaries from Kitsap County Department of Community Development
Wetland locations from National Wetland Inventory



EPA Region 10



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FIGURE 10
CHICO CREEK WATERSHED
KITSAP RIFLE AND REVOLVER CLUB
BREMERTON, KITSAP COUNTY, WA

May 2022

APPENDIX A
PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
Kitsap Rifle and Revolver Club	Bremerton, Kitsap County, Washington	68HE0720F0160

Photo No. 1	Date: 05/21/2021	
Photo Coordinates	Lat 47.606871	
Long -122.751136		
Direction Photo Taken: Southwest		
Description: Sample location KRRC-05.		
Photo No. 2	Date: 05/21/2021	
Photo Coordinates	Lat 47.607142	
Long -122.750515		
Direction Photo Taken: Northeast		
Description: Sample location KRRC-04.		



PHOTOGRAPH LOG – Spring

Project Name:	Site Location:	Project No.
Kitsap Rifle and Revolver Club	Bremerton, Kitsap County, Washington	68HE0720F0160

Photo No. 3	Date: 05/21/2021	
Photo Coordinates		
Lat	47.607735	
Long	-122.749285	
Direction Photo Taken:	Southwest	
Description: Sample location KRRC-03		

Photo No. 4	Date: 05/21/2021	
Photo Coordinates		
Lat	47.610494	
Long	-122.745891	
Direction Photo Taken:	Southeast	
Description: Sample location KRRC-06.		



PHOTOGRAPH LOG – Spring

Project Name:		Site Location:	Project No.
Kitsap Rifle and Revolver Club		Bremerton, Kitsap County, Washington	68HE0720F0160
Photo No. 5	Date: 05/21/2021	Photo Coordinates Lat 47.611982 Long -122.749217	
Direction Photo Taken: Southeast			
Description: Sample location KRRC-02.			
Photo No. 6	Date: 05/21/2021	Photo Coordinates Lat 47.607042 Long -122.745468	
Direction Photo Taken: South			
Description: Sample location KRRC-01.			

Project Name:	Site Location:	Project No.
Kitsap Rifle and Revolver Club	Bremerton, Kitsap County, Washington	68HE0720F0160

Photo No. 7	Date: 05/21/2021					
Photo Coordinates <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Lat</td> <td style="padding: 2px;">47.607322</td> </tr> <tr> <td style="padding: 2px;">Long</td> <td style="padding: 2px;">-122.750358</td> </tr> </table> Direction Photo Taken: NA			Lat	47.607322	Long	-122.750358
Lat	47.607322					
Long	-122.750358					

Photo No. 8	Date: 05/21/2021					
Photo Coordinates <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Lat</td> <td style="padding: 2px;">47.607778</td> </tr> <tr> <td style="padding: 2px;">Long</td> <td style="padding: 2px;">-122.749336</td> </tr> </table> Direction Photo Taken: NA			Lat	47.607778	Long	-122.749336
Lat	47.607778					
Long	-122.749336					

Project Name: Kitsap Rifle and Revolver Club	Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160
Photo No. 9	Date: 05/21/2021	

Project Name: Kitsap Rifle and Revolver Club	Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160
--	---	-------------------------------------

Photo No. 1	Date: 11/12/2021		
	Photo Coordinates		
Lat	47.606901		
Long	-122.745749		
Direction Photo Taken:	South		
Description:	Sample location KRRC-01.		
Photo No. 2	Date: 11/12/2021		
	Photo Coordinates		
Lat	47.60689		
Long	-122.745746		
Direction Photo Taken:	South		
Description:	Sediment and water samples collected from KRRC-01.		

Project Name:	Site Location:	Project No.
Kitsap Rifle and Revolver Club	Bremerton, Kitsap County, Washington	68HE0720F0160

Photo No.	Date:	
3	11/12/2021	
Photo Coordinates		
Lat	47.606662	
Long	-122.75103	
Direction Photo Taken:		
North		
Description:		
Sample location KRRC-05.		

Photo No.	Date:	
4	11/12/2021	
Photo Coordinates		
Lat	47.602858	
Long	-122.760689	
Direction Photo Taken:		
North		
Description:		
Sediment and water samples collected from KRRC-05.		

Project Name: Kitsap Rifle and Revolver Club		Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160
Photo No. 5	Date: 11/12/2021		
Photo Coordinates			
Lat	47.607324		
Long	-122.750637		
Direction Photo Taken:	Northeast		
Description:	Sample location KRRC-04.		
			
Photo No. 6	Date: 11/12/2021		
Photo Coordinates			
Lat	47.607324		
Long	-122.750637		
Direction Photo Taken:	Northeast		
Description:	Sediment and water samples collected from KRRC-04.		
			

Project Name: Kitsap Rifle and Revolver Club	Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160				
Photo No. 7	Date: 11/12/2021					
Photo Coordinates <table border="1"> <tr> <td>Lat</td> <td>47.60782</td> </tr> <tr> <td>Long</td> <td>-122.74904</td> </tr> </table> Direction Photo Taken: South	Lat	47.60782	Long	-122.74904		
Lat	47.60782					
Long	-122.74904					

Project Name: Kitsap Rifle and Revolver Club		Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160
Photo No. 9	Date: 11/12/2021	Photo Coordinates	
Lat	47.610546		
Long	-122.746178		
Direction Photo Taken:	Southeast		
Description:	Sample location KRRC-06. Area was dry.		
Photo No. 10	Date: 11/12/2021	Photo Coordinates	
Lat	47.61057		
Long	-122.746119		
Direction Photo Taken:	Southeast		
Description:	Sample location KRRC-06. Area was dry.		

Project Name: Kitsap Rifle and Revolver Club	Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160				
<p>Photo No. 11</p> <p>Date: 11/12/2021</p> <p>Photo Coordinates</p> <table> <tr> <td>Lat</td> <td>47.612131</td> </tr> <tr> <td>Long</td> <td>-122.745572</td> </tr> </table> <p>Direction Photo Taken: South</p> <p>Description: Upstream culvert opening to the south towards KRRC-06. Area was dry.</p>	Lat	47.612131	Long	-122.745572		
Lat	47.612131					
Long	-122.745572					
<p>Photo No. 12</p> <p>Date: 11/12/2021</p> <p>Photo Coordinates</p> <table> <tr> <td>Lat</td> <td>47.612131</td> </tr> <tr> <td>Long</td> <td>-122.745572</td> </tr> </table> <p>Direction Photo Taken: North</p> <p>Description: Upstream culvert (the same culvert pictured in Photo No. 11) opening to the north, upstream from KRRC-06. Area was dry.</p>	Lat	47.612131	Long	-122.745572		
Lat	47.612131					
Long	-122.745572					

Project Name:	Site Location:	Project No.
Kitsap Rifle and Revolver Club	Bremerton, Kitsap County, Washington	68HE0720F0160

Photo No. 13	Date: 11/12/2021	
Photo Coordinates	Lat 47.611521 Long -122.745343	
Direction Photo Taken:	East	
Description:	Dry streambed located upstream from KRRC-06.	
Photo No. 14	Date: 11/12/2021	
Photo Coordinates	Lat 47.61153 Long -122.745369	
Direction Photo Taken:	West	
Description:	Dry streambed located upstream from KRRC-06.	

Project Name: Kitsap Rifle and Revolver Club		Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160
Photo No. 15	Date: 11/12/2021		
Photo Coordinates			
Lat	47.612268		
Long	-122.749514		
Direction Photo Taken:	South		
Description:	Upstream culvert opening to the south towards KRRC-02. Area was dry.		
Photo No. 16	Date: 11/12/2021		
Photo Coordinates			
Lat	47.612268		
Long	-122.749514		
Direction Photo Taken:	North		
Description:	Upstream culvert (the same culvert pictured in Photo No. 16) opening to the north, upstream from KRRC-06. Area was dry.		

Project Name:		Site Location:	Project No.
Kitsap Rifle and Revolver Club		Bremerton, Kitsap County, Washington	68HE0720F0160
Photo No.	Date:		
17	11/12/2021		
Photo Coordinates			
Lat	47.611863		
Long	-122.749076		
Direction Photo Taken:			
	South		
Description:			
Sample location KRRC-02. Area is dry.			
Photo No.	Date:		
18	11/12/2021		
Photo Coordinates			
Lat	47.611941		
Long	-122.749222		
Direction Photo Taken:			
	Southeast		
Description:			
Tall grassy area near KRRC-02. Sediment was moist but did not produce water.			
			
			

Project Name:		Site Location:	Project No.
Kitsap Rifle and Revolver Club		Bremerton, Kitsap County, Washington	68HE0720F0160
Photo No.	Date:		
19	11/12/2021		
Photo Coordinates			
Lat	47.611985		
Long	-122.749113		
Direction Photo Taken:			
South			
Description:			
Sample location KRRC-02.			
Photo No.	Date:		
20	11/12/2021		
Photo Coordinates			
Lat	47.612112		
Long	-122.749393		
Direction Photo Taken:			
South			
Description:			
Sediment samples collected from KRRC-02.			
			
			

Project Name:	Site Location:	Project No.
Kitsap Rifle and Revolver Club	Bremerton, Kitsap County, Washington	68HE0720F0160

Photo No. 21	Date: 11/12/2021	Photo Coordinates <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">Lat</td> <td style="width: 95%;">47.612368</td> </tr> <tr> <td>Long</td> <td>-122.74982</td> </tr> </table> Direction Photo Taken: North	Lat	47.612368	Long	-122.74982
Lat	47.612368					
Long	-122.74982					
						

Photo No. 22	Date: 11/12/2021	Photo Coordinates <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">Lat</td> <td style="width: 95%;">47.612281</td> </tr> <tr> <td>Long</td> <td>-122.749839</td> </tr> </table> Direction Photo Taken: West	Lat	47.612281	Long	-122.749839
Lat	47.612281					
Long	-122.749839					
						

Project Name: Kitsap Rifle and Revolver Club		Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160
Photo No. 23	Date: 11/12/2021		
Photo Coordinates			
Lat	47.612807		
Long	-122.745379		
Direction Photo Taken:	East		
Description:	Dry streambed between the culvert upstream from KRRC-06 and alternate sample location KRRC-06-1. Note the black staining at the base of the tree that likely indicates the high-water mark during the wet season.		
Photo No. 24	Date: 11/12/2021		
Photo Coordinates			
Lat	47.613517		
Long	-122.744408		
Direction Photo Taken:	Northwest		
Description:	Alternate sample location KRRC-06-1.		

Project Name: Kitsap Rifle and Revolver Club	Site Location: Bremerton, Kitsap County, Washington	Project No. 68HE0720F0160
Photo No. 25	Date: 11/12/2021	

APPENDIX B
QUALITY ASSURANCE MEMORANDA



Weston Solutions, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134
WestonSolutions.com

®

March 16, 2022

MEMORANDUM

To: Stephen Nguyen, Superfund Technical Assessment and Response Team (START)-V
Project Team Leader, Weston Solutions, Inc. (WESTON), Seattle, Washington

From: Mark Woodke, START-V Project Chemist, WESTON, *MW*
Seattle, Washington

Re: MEL PAH Data Summary Check, SFP-174A
Kitsap Rifle and Revolver Club Site Reassessment
Bremerton, Kitsap County, Washington
Contract Number: 68HE0720D0005
Task Order, Subtask Number: 68HE0720F0160-008

The data summary check of six water samples collected from the above referenced site has been completed. The samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by the U.S. Environmental Protection Agency (EPA) Region 10 Laboratory in Port Orchard, WA, following EPA Method 8270E. All sample analyses were evaluated following EPA's Stage 4 Data Validation Electronic Process (S4VM).

The samples were numbered:

PAH waters

21214459 21214461 21214463 21214465 21214467 21214469

No discrepancies were noted. Note: there were no estimated results in this data package, therefore bias qualifiers for estimated results were not required.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT: Data Release for PAH in Water Results from the Region 10
USEPA Laboratory

PROJECT NAME: KITSAP RIFLE & REVOLVER

PROJECT CODE: SFP-174A

GERALD

FROM: Gerald Dodo, Supervisory Chemist **DODO**
USEPA Region 10 Laboratory
Laboratory Services & Applied Science Division

Digitally signed by
GERALD DODO

Date: 2021.06.23 07:08:58
-07'00'

TO: Brandon Perkins, Project Manager
Superfund & Emergency Management Division
USEPA Region 10

I have authorized release of this data package. Attached you will find the water PAH results for the Kitsap Rifle & Revolver project. For further information regarding the attached data, contact Dana Walker at 360-871-8704.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Drive East
Port Orchard, Washington 98366

**QUALITY ASSURANCE MEMORANDUM
FOR ORGANIC CHEMICAL ANALYSES**

June 22, 2021

From: Dana Walker
Laboratory Services & Applied Sciences Division, US EPA Region 10 Laboratory

To: Brandon Perkins
RE: KITSAP RIFLE & REVOLVER
Project Code: SFP-174A
Account Code: 2021T10P000FD210ZZLA00

**DANA
WALKER**

Digitally signed by DANA
WALKER
Date: 2021.06.22 06:38:47
-07'00'

PAH waters

21214459 21214461 21214463 21214465 21214467 21214469

The following describes the quality assurance review of the data for the analysis parameters and sample listed above. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

1. Data Qualifications

The US EPA Region 10 Laboratory has been accredited by A2LA and has Certificate Number 5027.01. For those tests for which the Laboratory has been accredited by A2LA, results in this report comply with ISO IEC 17025:2017 and the 2009 TNI Environmental Testing Laboratory Standard.

Field information was provided to the laboratory from other sources, such as Chain of Custody records.

The data and associated documents were reviewed against the quality control criteria outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The following areas were reviewed against these quality control measures:

Sample Transport and Receipt
Holding Times
Sample Preparation
Initial Calibration/Continuing Calibration Verification
Laboratory Control Samples
Blank Analysis
Surrogate Spikes
Internal Standard Performance
Compound Quantitation Analyte
Identification

2. Areas Not Meeting Laboratory/QAPP Criteria

None.

3. Data Qualifiers

Data for all samples and analytes were assessed for compliance with each of the requirements described in Section 1. Data qualifiers were assigned, as necessary, to alert the user to instances where data did not meet all requirements. In cases where more than one QC failure occurred, the most restrictive data qualifier has been applied to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier considering the project's data quality objectives. Should questions arise regarding the data, contact Dana Walker at the Region 10 Laboratory, phone number (360) 871-8704.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; however, the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte cannot be determined from the data due to severe quality control problems. The data are rejected and considered unusable. <u>No value is reported with this qualification.</u>
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. <u>No value is reported with this qualification.</u>



US EPA Region 10 Laboratory

Multi-Analyte Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Sample : 21214459

Information : KRRC-SW02

Matrix : Water

Collected : 5/21/2021 1:15:00PM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	5/27/21	1
83329	Acenaphthene	0.025	ug/L	U	5/27/21	1
208968	Acenaphthylene	0.025	ug/L	U	5/27/21	1
120127	Anthracene	0.025	ug/L	U	5/27/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	5/27/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	5/27/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	5/27/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	5/27/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	5/27/21	1
218019	Chrysene	0.025	ug/L	U	5/27/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	5/27/21	1
206440	Fluoranthene	0.025	ug/L	U	5/27/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	5/27/21	1
91203	Naphthalene	0.025	ug/L	U	5/27/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	5/27/21	1
85018	Phenanthrene	0.025	ug/L	U	5/27/21	1
129000	Pyrene	0.025	ug/L	U	5/27/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	91	%Rec		5/27/21	1
1719068	Anthracene-D10	89	%Rec		5/27/21	1
63466717	Benzo[a]pyrene-D12	101	%Rec		5/27/21	1
81103799	D10-Fluorene (SS)	80	%Rec		5/27/21	1
1718521	D10-Pyrene	90	%Rec		5/27/21	1

Sample : 21214461

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.050	ug/L	U	5/28/21	1
83329	Acenaphthene	0.050	ug/L	U	5/28/21	1
208968	Acenaphthylene	0.050	ug/L	U	5/28/21	1
120127	Anthracene	0.050	ug/L	U	5/28/21	1
56553	Benzo(a)anthracene	0.050	ug/L	U	5/28/21	1
50328	Benzo(a)pyrene	0.050	ug/L	U	5/28/21	1
191242	Benzo(g,h,i)perylene	0.050	ug/L	U	5/28/21	1
205992	Benzo[b]Fluoranthene	0.050	ug/L	U	5/28/21	1
207089	Benzo[k]fluoranthene	0.050	ug/L	U	5/28/21	1
218019	Chrysene	0.050	ug/L	U	5/28/21	1
53703	Dibenz[a,h]anthracene	0.050	ug/L	U	5/28/21	1
206440	Fluoranthene	0.050	ug/L	U	5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	0.050	ug/L	U	5/28/21	1
91203	Naphthalene	0.050	ug/L	U	5/28/21	1
91576	Naphthalene, 2-methyl-	0.050	ug/L	U	5/28/21	1
85018	Phenanthrene	0.050	ug/L	U	5/28/21	1
129000	Pyrene	0.050	ug/L	U	5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	68	%Rec		5/28/21	1
1719068	Anthracene-D10	87	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	94	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	64	%Rec		5/28/21	1
1718521	D10-Pyrene	89	%Rec		5/28/21	1

Sample : 21214463

Information : KRRC-SW04

Matrix : Water

Collected : 5/21/2021 9:40:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.050	ug/L	U	5/28/21	1
83329	Acenaphthene	0.050	ug/L	U	5/28/21	1
208968	Acenaphthylene	0.050	ug/L	U	5/28/21	1
120127	Anthracene	0.050	ug/L	U	5/28/21	1
56553	Benzo(a)anthracene	0.050	ug/L	U	5/28/21	1
50328	Benzo(a)pyrene	0.050	ug/L	U	5/28/21	1
191242	Benzo(g,h,i)perylene	0.050	ug/L	U	5/28/21	1
205992	Benzo[b]Fluoranthene	0.050	ug/L	U	5/28/21	1
207089	Benzo[k]fluoranthene	0.050	ug/L	U	5/28/21	1
218019	Chrysene	0.050	ug/L	U	5/28/21	1
53703	Dibenzo[a,h]anthracene	0.050	ug/L	U	5/28/21	1
206440	Fluoranthene	0.050	ug/L	U	5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	0.050	ug/L	U	5/28/21	1
91203	Naphthalene	0.050	ug/L	U	5/28/21	1
91576	Naphthalene, 2-methyl-	0.050	ug/L	U	5/28/21	1
85018	Phenanthrene	0.050	ug/L	U	5/28/21	1
129000	Pyrene	0.050	ug/L	U	5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	66	%Rec		5/28/21	1
1719068	Anthracene-D10	64	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	70	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	64	%Rec		5/28/21	1
1718521	D10-Pyrene	85	%Rec		5/28/21	1

Sample : 21214465

Information : KRRC-SW05

Matrix : Water

Collected : 5/21/2021 8:30:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	5/27/21	1
83329	Acenaphthene	0.025	ug/L	U	5/27/21	1
208968	Acenaphthylene	0.025	ug/L	U	5/27/21	1
120127	Anthracene	0.025	ug/L	U	5/27/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	5/27/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	5/27/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	5/27/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	5/27/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	5/27/21	1
218019	Chrysene	0.025	ug/L	U	5/27/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	5/27/21	1
206440	Fluoranthene	0.025	ug/L	U	5/27/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	5/27/21	1
91203	Naphthalene	0.025	ug/L	U	5/27/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	5/27/21	1
85018	Phenanthrene	0.025	ug/L	U	5/27/21	1
129000	Pyrene	0.025	ug/L	U	5/27/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	97	%Rec		5/27/21	1
1719068	Anthracene-D10	98	%Rec		5/27/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		5/27/21	1
81103799	D10-Fluorene (SS)	83	%Rec		5/27/21	1
1718521	D10-Pyrene	95	%Rec		5/27/21	1

Sample : 21214467

Information : KRRC-SW06

Matrix : Water

Collected : 5/21/2021 12:35:00PM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	5/27/21	1
83329	Acenaphthene	0.025	ug/L	U	5/27/21	1
208968	Acenaphthylene	0.025	ug/L	U	5/27/21	1
120127	Anthracene	0.025	ug/L	U	5/27/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	5/27/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	5/27/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	5/27/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	5/27/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	5/27/21	1
218019	Chrysene	0.025	ug/L	U	5/27/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	5/27/21	1
206440	Fluoranthene	0.025	ug/L	U	5/27/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	5/27/21	1
91203	Naphthalene	0.025	ug/L	U	5/27/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	5/27/21	1
85018	Phenanthrene	0.025	ug/L	U	5/27/21	1
129000	Pyrene	0.025	ug/L	U	5/27/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	100	%Rec		5/27/21	1
1719068	Anthracene-D10	107	%Rec		5/27/21	1
63466717	Benzo[a]pyrene-D12	101	%Rec		5/27/21	1
81103799	D10-Fluorene (SS)	85	%Rec		5/27/21	1
1718521	D10-Pyrene	98	%Rec		5/27/21	1

Sample : 21214469

Information : KRRC-SW04

Matrix : Water

Collected : 5/21/2021 11:05:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.050	ug/L	U	5/28/21	1
83329	Acenaphthene	0.050	ug/L	U	5/28/21	1
208968	Acenaphthylene	0.050	ug/L	U	5/28/21	1
120127	Anthracene	0.050	ug/L	U	5/28/21	1
56553	Benzo(a)anthracene	0.050	ug/L	U	5/28/21	1
50328	Benzo(a)pyrene	0.050	ug/L	U	5/28/21	1
191242	Benzo(g,h,i)perylene	0.050	ug/L	U	5/28/21	1
205992	Benzo[b]Fluoranthene	0.050	ug/L	U	5/28/21	1
207089	Benzo[k]fluoranthene	0.050	ug/L	U	5/28/21	1
218019	Chrysene	0.050	ug/L	U	5/28/21	1
53703	Dibenzo[a,h]anthracene	0.050	ug/L	U	5/28/21	1
206440	Fluoranthene	0.050	ug/L	U	5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	0.050	ug/L	U	5/28/21	1
91203	Naphthalene	0.050	ug/L	U	5/28/21	1
91576	Naphthalene, 2-methyl-	0.050	ug/L	U	5/28/21	1
85018	Phenanthrene	0.050	ug/L	U	5/28/21	1
129000	Pyrene	0.050	ug/L	U	5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	96	%Rec		5/28/21	1
1719068	Anthracene-D10	73	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	81	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	90	%Rec		5/28/21	1
1718521	D10-Pyrene	92	%Rec		5/28/21	1

Sample : 21214461 Matrix Spike

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	67	%Rec		5/28/21	1
83329	Acenaphthene	67	%Rec		5/28/21	1
208968	Acenaphthylene	71	%Rec		5/28/21	1
120127	Anthracene	91	%Rec		5/28/21	1
56553	Benzo(a)anthracene	111	%Rec		5/28/21	1
50328	Benzo(a)pyrene	93	%Rec		5/28/21	1
191242	Benzo(g,h,i)perylene	88	%Rec		5/28/21	1
205992	Benzo[b]Fluoranthene	98	%Rec		5/28/21	1
207089	Benzo[k]fluoranthene	90	%Rec		5/28/21	1
218019	Chrysene	91	%Rec		5/28/21	1
53703	Dibenzo[a,h]anthracene	96	%Rec		5/28/21	1
206440	Fluoranthene	101	%Rec		5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	94	%Rec		5/28/21	1
91203	Naphthalene	89	%Rec		5/28/21	1
91576	Naphthalene, 2-methyl-	92	%Rec		5/28/21	1
85018	Phenanthrene	89	%Rec		5/28/21	1
129000	Pyrene	90	%Rec		5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	74	%Rec		5/28/21	1
1719068	Anthracene-D10	94	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	68	%Rec		5/28/21	1
1718521	D10-Pyrene	95	%Rec		5/28/21	1

Sample : 21214461 Matrix Spike#2

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	66	%Rec		5/28/21	1
83329	Acenaphthene	66	%Rec		5/28/21	1
208968	Acenaphthylene	70	%Rec		5/28/21	1
120127	Anthracene	90	%Rec		5/28/21	1
56553	Benzo(a)anthracene	109	%Rec		5/28/21	1
50328	Benzo(a)pyrene	92	%Rec		5/28/21	1
191242	Benzo(g,h,i)perylene	86	%Rec		5/28/21	1
205992	Benzo[b]Fluoranthene	91	%Rec		5/28/21	1
207089	Benzo[k]fluoranthene	96	%Rec		5/28/21	1
218019	Chrysene	90	%Rec		5/28/21	1
53703	Dibenzo[a,h]anthracene	95	%Rec		5/28/21	1
206440	Fluoranthene	102	%Rec		5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	93	%Rec		5/28/21	1
91203	Naphthalene	90	%Rec		5/28/21	1
91576	Naphthalene, 2-methyl-	92	%Rec		5/28/21	1
85018	Phenanthrene	90	%Rec		5/28/21	1
129000	Pyrene	89	%Rec		5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	74	%Rec		5/28/21	1
1719068	Anthracene-D10	93	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	99	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	68	%Rec		5/28/21	1
1718521	D10-Pyrene	94	%Rec		5/28/21	1

Sample : 105W052621B1 Blank

Information : Blank
 Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	5/27/21	1
83329	Acenaphthene	0.025	ug/L	U	5/27/21	1
208968	Acenaphthylene	0.025	ug/L	U	5/27/21	1
120127	Anthracene	0.025	ug/L	U	5/27/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	5/27/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	5/27/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	5/27/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	5/27/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	5/27/21	1
218019	Chrysene	0.025	ug/L	U	5/27/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	5/27/21	1
206440	Fluoranthene	0.025	ug/L	U	5/27/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	5/27/21	1
91203	Naphthalene	0.025	ug/L	U	5/27/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	5/27/21	1
85018	Phenanthrene	0.025	ug/L	U	5/27/21	1
129000	Pyrene	0.025	ug/L	U	5/27/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	87	%Rec		5/27/21	1
1719068	Anthracene-D10	93	%Rec		5/27/21	1
63466717	Benzo[a]pyrene-D12	103	%Rec		5/27/21	1
81103799	D10-Fluorene (SS)	82	%Rec		5/27/21	1
1718521	D10-Pyrene	98	%Rec		5/27/21	1

Sample : 105W052821B1 Blank

Information : Blank
 Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	5/28/21	1
83329	Acenaphthene	0.025	ug/L	U	5/28/21	1
208968	Acenaphthylene	0.025	ug/L	U	5/28/21	1
120127	Anthracene	0.025	ug/L	U	5/28/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	5/28/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	5/28/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	5/28/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	5/28/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	5/28/21	1
218019	Chrysene	0.025	ug/L	U	5/28/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	5/28/21	1
206440	Fluoranthene	0.025	ug/L	U	5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	5/28/21	1
91203	Naphthalene	0.025	ug/L	U	5/28/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	5/28/21	1
85018	Phenanthrene	0.025	ug/L	U	5/28/21	1
129000	Pyrene	0.025	ug/L	U	5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	77	%Rec		5/28/21	1
1719068	Anthracene-D10	88	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	92	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	79	%Rec		5/28/21	1
1718521	D10-Pyrene	97	%Rec		5/28/21	1

Sample : 105W052621L1 Lab Control Std

Information : Lab Control Standard

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	78	%Rec		5/27/21	1
83329	Acenaphthene	77	%Rec		5/27/21	1
208968	Acenaphthylene	84	%Rec		5/27/21	1
120127	Anthracene	89	%Rec		5/27/21	1
56553	Benzo(a)anthracene	136	%Rec		5/27/21	1
50328	Benzo(a)pyrene	96	%Rec		5/27/21	1
191242	Benzo(g,h,i)perylene	97	%Rec		5/27/21	1
205992	Benzo[b]Fluoranthene	106	%Rec		5/27/21	1
207089	Benzo[k]fluoranthene	106	%Rec		5/27/21	1
218019	Chrysene	93	%Rec		5/27/21	1
53703	Dibenzo[a,h]anthracene	106	%Rec		5/27/21	1
206440	Fluoranthene	116	%Rec		5/27/21	1
193395	Indeno(1,2,3-cd)pyrene	110	%Rec		5/27/21	1
91203	Naphthalene	84	%Rec		5/27/21	1
91576	Naphthalene, 2-methyl-	92	%Rec		5/27/21	1
85018	Phenanthrene	87	%Rec		5/27/21	1
129000	Pyrene	94	%Rec		5/27/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	90	%Rec		5/27/21	1
1719068	Anthracene-D10	99	%Rec		5/27/21	1
63466717	Benzo[a]pyrene-D12	118	%Rec		5/27/21	1
81103799	D10-Fluorene (SS)	80	%Rec		5/27/21	1
1718521	D10-Pyrene	99	%Rec		5/27/21	1

Sample : 105W052821L1 Lab Control Std

Information : Lab Control Standard

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	75	%Rec		5/28/21	1
83329	Acenaphthene	76	%Rec		5/28/21	1
208968	Acenaphthylene	76	%Rec		5/28/21	1
120127	Anthracene	90	%Rec		5/28/21	1
56553	Benzo(a)anthracene	114	%Rec		5/28/21	1
50328	Benzo(a)pyrene	97	%Rec		5/28/21	1
191242	Benzo(g,h,i)perylene	94	%Rec		5/28/21	1
205992	Benzo[b]Fluoranthene	99	%Rec		5/28/21	1
207089	Benzo[k]fluoranthene	104	%Rec		5/28/21	1
218019	Chrysene	96	%Rec		5/28/21	1
53703	Dibenzo[a,h]anthracene	99	%Rec		5/28/21	1
206440	Fluoranthene	106	%Rec		5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	100	%Rec		5/28/21	1
91203	Naphthalene	85	%Rec		5/28/21	1
91576	Naphthalene, 2-methyl-	88	%Rec		5/28/21	1
85018	Phenanthrene	90	%Rec		5/28/21	1
129000	Pyrene	94	%Rec		5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	79	%Rec		5/28/21	1
1719068	Anthracene-D10	93	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	77	%Rec		5/28/21	1
1718521	D10-Pyrene	99	%Rec		5/28/21	1

Sample : 105W052621L2 Lab Control Std#2

Information : Lab Control Standard Dup.

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	87	%Rec		5/27/21	1
83329	Acenaphthene	86	%Rec		5/27/21	1
208968	Acenaphthylene	95	%Rec		5/27/21	1
120127	Anthracene	96	%Rec		5/27/21	1
56553	Benzo(a)anthracene	138	%Rec		5/27/21	1
50328	Benzo(a)pyrene	96	%Rec		5/27/21	1
191242	Benzo(g,h,i)perylene	96	%Rec		5/27/21	1
205992	Benzo[b]Fluoranthene	111	%Rec		5/27/21	1
207089	Benzo[k]fluoranthene	100	%Rec		5/27/21	1
218019	Chrysene	92	%Rec		5/27/21	1
53703	Dibenzo[a,h]anthracene	105	%Rec		5/27/21	1
206440	Fluoranthene	121	%Rec		5/27/21	1
193395	Indeno(1,2,3-cd)pyrene	109	%Rec		5/27/21	1
91203	Naphthalene	94	%Rec		5/27/21	1
91576	Naphthalene, 2-methyl-	102	%Rec		5/27/21	1
85018	Phenanthrene	95	%Rec		5/27/21	1
129000	Pyrene	97	%Rec		5/27/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	102	%Rec		5/27/21	1
1719068	Anthracene-D10	107	%Rec		5/27/21	1
63466717	Benzo[a]pyrene-D12	118	%Rec		5/27/21	1
81103799	D10-Fluorene (SS)	89	%Rec		5/27/21	1
1718521	D10-Pyrene	103	%Rec		5/27/21	1

Sample : 105W052821L2 Lab Control Std#2

Information : Lab Control Standard Dup.

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	84	%Rec		5/28/21	1
83329	Acenaphthene	85	%Rec		5/28/21	1
208968	Acenaphthylene	87	%Rec		5/28/21	1
120127	Anthracene	98	%Rec		5/28/21	1
56553	Benzo(a)anthracene	115	%Rec		5/28/21	1
50328	Benzo(a)pyrene	97	%Rec		5/28/21	1
191242	Benzo(g,h,i)perylene	94	%Rec		5/28/21	1
205992	Benzo[b]Fluoranthene	99	%Rec		5/28/21	1
207089	Benzo[k]fluoranthene	103	%Rec		5/28/21	1
218019	Chrysene	96	%Rec		5/28/21	1
53703	Dibenzo[a,h]anthracene	99	%Rec		5/28/21	1
206440	Fluoranthene	109	%Rec		5/28/21	1
193395	Indeno(1,2,3-cd)pyrene	100	%Rec		5/28/21	1
91203	Naphthalene	95	%Rec		5/28/21	1
91576	Naphthalene, 2-methyl-	97	%Rec		5/28/21	1
85018	Phenanthrene	97	%Rec		5/28/21	1
129000	Pyrene	98	%Rec		5/28/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	90	%Rec		5/28/21	1
1719068	Anthracene-D10	101	%Rec		5/28/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		5/28/21	1
81103799	D10-Fluorene (SS)	86	%Rec		5/28/21	1
1718521	D10-Pyrene	103	%Rec		5/28/21	1



Weston Solutions, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134
WestonSolutions.com

®

March 16, 2022

MEMORANDUM

To: Stephen Nguyen, Superfund Technical Assessment and Response Team (START)-V
Project Team Leader, Weston Solutions, Inc. (WESTON), Seattle, Washington

From: Mark Woodke, START-V Project Chemist, WESTON, *MW*
Seattle, Washington

Re: MEL PAH Data Summary Check, SFP-174A
Kitsap Rifle and Revolver Club Site Reassessment
Bremerton, Kitsap County, Washington
Contract Number: 68HE0720D0005
Task Order, Subtask Number: 68HE0720F0160-008

The data summary check of seven sediment samples collected from the above referenced site has been completed. The samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by the U.S. Environmental Protection Agency (EPA) Region 10 Laboratory in Port Orchard, WA, following EPA Method 8270E. All sample analyses were evaluated following EPA's Stage 4 Data Validation Electronic Process (S4VM).

The samples were numbered:

PAH sediments

21214450 21214451 21214452 21214453 21214454 21214455
21214456

No discrepancies were noted. Note: there were no estimated results in this data package, therefore bias qualifiers for estimated results were not required.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT: Data Release for PAH in Sediment Results from the Region
10 USEPA Laboratory

PROJECT NAME: KITSAP RIFLE & REVOLVER

PROJECT CODE: SFP-174A

GERALD

FROM: Gerald Dodo, Supervisory Chemist
USEPA Region 10 Laboratory
Laboratory Services & Applied Science Division

DODO

Digitally signed by GERALD
DODO
Date: 2021.06.21 13:31:59
-07'00'

TO: Brandon Perkins, Project Manager
Superfund & Emergency Management Division
USEPA Region 10

I have authorized release of this data package. Attached you will find the sediment PAH results for the Kitsap Rifle & Revolver project. For further information regarding the attached data, contact Dana Walker at 360-871-8704.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Drive East
Port Orchard, Washington 98366

**QUALITY ASSURANCE MEMORANDUM
FOR ORGANIC CHEMICAL ANALYSES**

June 16, 2021

From: Dana Walker
Laboratory Services & Applied Sciences Division, US EPA Region 10 Laboratory

To: Brandon Perkins
RE: KITSAP RIFLE & REVOLVER
Project Code: SFP-174A
Account Code: 2021T10P000DD210ZZLA00

**DANA
WALKER**

Digitally signed by DANA
WALKER
Date: 2021.06.17 10:21:04
-07'00'

PAH sediments

21214450, 21214451, 21214452, 21214453, 21214454, 21214455, 21214456

The following describes the quality assurance review of the data for the analysis parameters and sample listed above. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

1. Data Qualifications

The US EPA Region 10 Laboratory has been accredited by A2LA and has Certificate Number 5027.01. For those tests for which the Laboratory has been accredited by A2LA, results in this report comply with ISO IEC 17025:2017 and the 2009 TNI Environmental Testing Laboratory Standard.

Field information was provided to the laboratory from other sources, such as Chain of Custody records.

The data and associated documents were reviewed against the quality control criteria outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The following areas were reviewed against these quality control measures:

Sample Transport and Receipt
Holding Times
Sample Preparation
Initial Calibration/Continuing Calibration Verification
Laboratory Control Samples
Blank Analysis
Surrogate Spikes
Internal Standard Performance
Compound Quantitation Analyte
Identification

2. Areas Not Meeting Laboratory/QAPP Criteria

None.

3. Data Qualifiers

Data for all samples and analytes were assessed for compliance with each of the requirements described in Section 1. Data qualifiers were assigned, as necessary, to alert the user to instances where data did not meet all requirements. In cases where more than one QC failure occurred, the most restrictive data qualifier has been applied to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier considering the project's data quality objectives. Should questions arise regarding the data, contact Dana Walker at the Region 10 Laboratory, phone number (360) 871-8704.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; however, the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte cannot be determined from the data due to severe quality control problems. The data are rejected and considered unusable. <u>No value is reported with this qualification.</u>
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. <u>No value is reported with this qualification.</u>

US EPA Region 10 Laboratory

Multi-Analyte Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Sample : 21214450

Information : KRRC-SE01

Matrix : Sediment

Collected : 5/21/2021 2:30:00PM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	33	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	33	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	33	ug/kg	U	6/ 3/21	1
120127	Anthracene	33	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	33	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	52	ug/kg		6/ 3/21	1
191242	Benzo(g,h,i)perylene	40	ug/kg		6/ 3/21	1
205992	Benzo[b]Fluoranthene	33	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	33	ug/kg	U	6/ 3/21	1
218019	Chrysene	33	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	33	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	33	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	33	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	33	ug/kg	U	6/ 3/21	1
91203	Naphthalene	33	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	33	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	33	ug/kg	U	6/ 3/21	1
129000	Pyrene	33	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	102	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	95	%Rec		6/ 3/21	1
1718521	D10-Pyrene	103	%Rec		6/ 3/21	1

Sample : 21214451

Information : KRRC-SE02

Matrix : Sediment

Collected : 5/21/2021 1:15:00PM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	49	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	49	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	49	ug/kg	U	6/ 3/21	1
120127	Anthracene	49	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	49	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	49	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	49	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	49	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	49	ug/kg	U	6/ 3/21	1
218019	Chrysene	49	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	49	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	49	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	49	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	49	ug/kg	U	6/ 3/21	1
91203	Naphthalene	49	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	49	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	49	ug/kg	U	6/ 3/21	1
129000	Pyrene	49	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	99	%Rec		6/ 3/21	1
1719068	Anthracene-D10	93	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	97	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	91	%Rec		6/ 3/21	1
1718521	D10-Pyrene	98	%Rec		6/ 3/21	1

Sample : 21214452

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 10:05:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	50	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	50	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	50	ug/kg	U	6/ 3/21	1
120127	Anthracene	50	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	50	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	50	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	50	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	50	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	50	ug/kg	U	6/ 3/21	1
218019	Chrysene	50	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	50	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	50	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	50	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	50	ug/kg	U	6/ 3/21	1
91203	Naphthalene	50	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	50	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	50	ug/kg	U	6/ 3/21	1
129000	Pyrene	50	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	93	%Rec		6/ 3/21	1
1718521	D10-Pyrene	104	%Rec		6/ 3/21	1

Sample : 21214453

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	34	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	34	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	34	ug/kg	U	6/ 3/21	1
120127	Anthracene	34	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	34	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	34	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	34	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	34	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	34	ug/kg	U	6/ 3/21	1
218019	Chrysene	34	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	34	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	34	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	34	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	34	ug/kg	U	6/ 3/21	1
91203	Naphthalene	34	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	34	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	34	ug/kg	U	6/ 3/21	1
129000	Pyrene	34	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	102	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	94	%Rec		6/ 3/21	1
1718521	D10-Pyrene	105	%Rec		6/ 3/21	1

Sample : 21214454

Information : KRRC-SE05

Matrix : Sediment

Collected : 5/21/2021 8:30:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	49	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	49	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	49	ug/kg	U	6/ 3/21	1
120127	Anthracene	49	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	49	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	49	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	49	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	49	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	49	ug/kg	U	6/ 3/21	1
218019	Chrysene	49	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	49	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	49	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	49	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	49	ug/kg	U	6/ 3/21	1
91203	Naphthalene	49	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	49	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	49	ug/kg	U	6/ 3/21	1
129000	Pyrene	49	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		6/ 3/21	1
1719068	Anthracene-D10	94	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	92	%Rec		6/ 3/21	1
1718521	D10-Pyrene	100	%Rec		6/ 3/21	1

Sample : 21214455

Information : KRRC-SE06

Matrix : Sediment

Collected : 5/21/2021 12:35:00PM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	49	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	49	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	49	ug/kg	U	6/ 3/21	1
120127	Anthracene	49	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	49	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	49	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	49	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	49	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	49	ug/kg	U	6/ 3/21	1
218019	Chrysene	49	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	49	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	49	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	49	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	49	ug/kg	U	6/ 3/21	1
91203	Naphthalene	49	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	49	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	49	ug/kg	U	6/ 3/21	1
129000	Pyrene	49	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	106	%Rec		6/ 3/21	1
1719068	Anthracene-D10	97	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	96	%Rec		6/ 3/21	1
1718521	D10-Pyrene	102	%Rec		6/ 3/21	1

Sample : 21214456

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 11:30:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	50	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	50	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	50	ug/kg	U	6/ 3/21	1
120127	Anthracene	50	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	50	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	50	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	50	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	50	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	50	ug/kg	U	6/ 3/21	1
218019	Chrysene	50	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	50	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	50	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	50	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	50	ug/kg	U	6/ 3/21	1
91203	Naphthalene	50	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	50	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	50	ug/kg	U	6/ 3/21	1
129000	Pyrene	50	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	104	%Rec		6/ 3/21	1
1719068	Anthracene-D10	96	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	102	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	93	%Rec		6/ 3/21	1
1718521	D10-Pyrene	105	%Rec		6/ 3/21	1

Sample : 21214453 Matrix Spike

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	96	%Rec		6/ 3/21	1
83329	Acenaphthene	95	%Rec		6/ 3/21	1
208968	Acenaphthylene	104	%Rec		6/ 3/21	1
120127	Anthracene	102	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	105	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	104	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	112	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	110	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	104	%Rec		6/ 3/21	1
218019	Chrysene	98	%Rec		6/ 3/21	1
53703	Dibenzo[a,h]anthracene	106	%Rec		6/ 3/21	1
132649	Dibenzofuran	96	%Rec		6/ 3/21	1
206440	Fluoranthene	105	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	106	%Rec		6/ 3/21	1
91203	Naphthalene	93	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	96	%Rec		6/ 3/21	1
85018	Phenanthrene	95	%Rec		6/ 3/21	1
129000	Pyrene	105	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	108	%Rec		6/ 3/21	1
1719068	Anthracene-D10	97	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	97	%Rec		6/ 3/21	1
1718521	D10-Pyrene	107	%Rec		6/ 3/21	1

Sample : 21214453 Matrix Spike#2

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	97	%Rec		6/ 3/21	1
83329	Acenaphthene	94	%Rec		6/ 3/21	1
208968	Acenaphthylene	103	%Rec		6/ 3/21	1
120127	Anthracene	101	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	103	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	100	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	108	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	114	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	92	%Rec		6/ 3/21	1
218019	Chrysene	95	%Rec		6/ 3/21	1
53703	Dibenzo[a,h]anthracene	103	%Rec		6/ 3/21	1
132649	Dibenzofuran	96	%Rec		6/ 3/21	1
206440	Fluoranthene	102	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	103	%Rec		6/ 3/21	1
91203	Naphthalene	91	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		6/ 3/21	1
85018	Phenanthrene	95	%Rec		6/ 3/21	1
129000	Pyrene	101	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		6/ 3/21	1
1719068	Anthracene-D10	96	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	102	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	98	%Rec		6/ 3/21	1
1718521	D10-Pyrene	104	%Rec		6/ 3/21	1

Sample : 105S060221B1 Blank

Information : Blank

Matrix : Solid

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Date	Analysis Dilution
Target Analyte Results:						
86737	9H-Fluorene	25	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	25	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	25	ug/kg	U	6/ 3/21	1
120127	Anthracene	25	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	25	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	25	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	25	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	25	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	25	ug/kg	U	6/ 3/21	1
218019	Chrysene	25	ug/kg	U	6/ 3/21	1
53703	Dibenz[a,h]anthracene	25	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	25	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	25	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	25	ug/kg	U	6/ 3/21	1
91203	Naphthalene	25	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	25	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	25	ug/kg	U	6/ 3/21	1
129000	Pyrene	25	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		6/ 3/21	1
1719068	Anthracene-D10	93	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	95	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	96	%Rec		6/ 3/21	1
1718521	D10-Pyrene	108	%Rec		6/ 3/21	1

Sample : 105S060221L1 Lab Control Std

Information : Lab Control Standard

Matrix : Solid

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	96	%Rec		6/ 3/21	1
83329	Acenaphthene	94	%Rec		6/ 3/21	1
208968	Acenaphthylene	99	%Rec		6/ 3/21	1
120127	Anthracene	100	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	101	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	99	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	105	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	99	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	104	%Rec		6/ 3/21	1
218019	Chrysene	94	%Rec		6/ 3/21	1
53703	Dibenzo[a,h]anthracene	97	%Rec		6/ 3/21	1
132649	Dibenzofuran	95	%Rec		6/ 3/21	1
206440	Fluoranthene	106	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	98	%Rec		6/ 3/21	1
91203	Naphthalene	92	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		6/ 3/21	1
85018	Phenanthrene	93	%Rec		6/ 3/21	1
129000	Pyrene	100	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	102	%Rec		6/ 3/21	1
1719068	Anthracene-D10	94	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	99	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	97	%Rec		6/ 3/21	1
1718521	D10-Pyrene	99	%Rec		6/ 3/21	1

Sample : 105S060221L2 Lab Control Std#2

Information : Lab Control Standard Dup.

Matrix : Solid

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	97	%Rec		6/ 3/21	1
83329	Acenaphthene	92	%Rec		6/ 3/21	1
208968	Acenaphthylene	102	%Rec		6/ 3/21	1
120127	Anthracene	98	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	101	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	98	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	105	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	99	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	96	%Rec		6/ 3/21	1
218019	Chrysene	92	%Rec		6/ 3/21	1
53703	Dibenzo[a,h]anthracene	96	%Rec		6/ 3/21	1
132649	Dibenzofuran	94	%Rec		6/ 3/21	1
206440	Fluoranthene	101	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	96	%Rec		6/ 3/21	1
91203	Naphthalene	91	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		6/ 3/21	1
85018	Phenanthrene	92	%Rec		6/ 3/21	1
129000	Pyrene	98	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	106	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	99	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	99	%Rec		6/ 3/21	1
1718521	D10-Pyrene	100	%Rec		6/ 3/21	1



Weston Solutions, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134
WestonSolutions.com

®

March 16, 2022

MEMORANDUM

To: Stephen Nguyen, Superfund Technical Assessment and Response Team (START)-V
Project Team Leader, Weston Solutions, Inc. (WESTON), Seattle, Washington

From: Mark Woodke, START-V Project Chemist, WESTON, *MW*
Seattle, Washington

Re: MEL Inorganic Data Summary Check, SFP-174A
Kitsap Rifle and Revolver Club Site Reassessment
Bremerton, Kitsap County, Washington
Contract Number: 68HE0720D0005
Task Order, Subtask Number: 68HE0720F0160-008

The data summary check of seven sediment samples and 12 water samples collected from the above referenced site has been completed. The samples were analyzed for total and/or dissolved metals by the U.S. Environmental Protection Agency (EPA) Region 10 Laboratory in Port Orchard, WA, following EPA Method 6010D (soil) and EPA Methods 200.7 and 200.8 (water). Results for Hardness as CaCO₃ by calculation following Standard Method 2340B were provided for the water samples as noted below. All sample analyses were evaluated following EPA's Stage 4 Data Validation Electronic Process (S4VM).

The samples were numbered:

Metals in Sediments

21214450	21214451	21214452	21214453	21214454	21214455
21214456					

Total Metals and Hardness by Calculation in Water

21214459	21214461	21214463	21214465	21214467	21214469
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Dissolved Metals in Waters (Filtered)

21214460	21214462	21214464	21214466	21214468	21214470
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No discrepancies were noted. Note: there were estimated results in this data package, however bias qualifiers for estimated results were not applied.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Drive East
Port Orchard, Washington 98366

QUALITY ASSURANCE MEMORANDUM
FOR INORGANIC CHEMICAL ANALYSES

July 14, 2021

**THERESA
MCBRIDE**

Digitally signed by
THERESA MCBRIDE
Date: 2021.07.14
15:03:16 -07'00'

From: Theresa McBride & Katie Adams
Laboratory Services & Applied Sciences Division, US EPA Region 10 Laboratory

**KATHERIN
E ADAMS**

Digitally signed by
KATHERINE ADAMS
Date: 2021.07.14
15:06:59 -07'00'

To: Brandon Perkins
RE: Kitsap Rifle & Revolver
Project Code: SFP-174A
Account Code: 2021T10P000FD210ZZLA00

Metals in Sediments

21214450	21214451	21214452	21214453	21214454	21214455
21214456					

Total Metals in Water

21214459	21214461	21214463	21214465	21214467	21214469
----------	----------	----------	----------	----------	----------

Dissolved Metals in Waters (Filtered)

21214460	21214462	21214464	21214466	21214468	21214470
----------	----------	----------	----------	----------	----------

The following describes the quality assurance review of the data for the analysis parameters and samples listed above. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

1. Data Qualifications

The US EPA Region 10 Laboratory has been accredited by A2LA and has Certificate Number 5027.01. For those tests for which the Laboratory has been accredited by A2LA, results in this report comply with ISO IEC 17025:2017 and the 2009 TNI Environmental Testing Laboratory Standard.

Field information was provided to the laboratory from other sources, such as Chain of Custody records.

The data and associated documents were reviewed against the quality control criteria outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The following areas were reviewed against these quality control measures:

- Sample Transport and Receipt
- Sample Holding Times
- Sample Preparation
- Initial Calibration/Continuing Calibration Verification
- Laboratory Control Samples
- Blank Analysis
- Duplicate Analysis
- Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- Internal Standard Performance

Reference Materials
 Instrument Peak Integrations
 Interferences

2. QC Elements Not Meeting Laboratory/QAPP Criteria

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

In sediments, MS/MSD recoveries were low (44% and 43%) for antimony and high (129% and 143%) for calcium; and the MSD was high (138%) for manganese. All antimony, calcium and manganese results for sediments are qualified "J", estimated, on this basis.

In water samples, the MSD was high (128%) for aluminum. All detected total aluminum results for waters are qualified "J", estimated, on this basis.

3. Changes from Preliminary Data

The Aluminum result for sample 21214465 was qualified "UJ" in preliminary data but will be qualified only "U" in the final data (the high MSD indicates possible high bias, which is not indicated in non-detected results). No other changes were made to the results between the preliminary and final data.

4. Data Qualifiers

Data for all samples and analytes were assessed for compliance with each of the requirements described in Section 1. Data qualifiers were assigned, as necessary, to alert the user to instances where data did not meet all requirements. In cases where more than one QC failure occurred, the most restrictive data qualifier has been applied to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier considering the project's data quality objectives. Should questions arise regarding the data, contact Katie Adams at the Region 10 Laboratory, phone number (360) 871-8748.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; however, the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte cannot be determined from the data due to severe quality control problems. The data are rejected and considered unusable. <u>No value is reported with this qualification.</u>
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. <u>No value is reported with this qualification.</u> ‡

‡ NA is most often applied to spike results where the recovery cannot be determined accurately due to the high native sample concentration.



US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Parameter(s): Hardness

Analyte: *90080 - Hardness as CaCO₃

Weight Basis : N/A

Prep Method(s): 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analytical Method: SM2340B - Hardness by Calculation, Standard Methods

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214459 sam	KRRC-SW02	Water	15.1	mg/L		6/7/21	2
21214461 sam	KRRC-SW03	Water	11.3	mg/L		6/7/21	2
21214463 sam	KRRC-SW04	Water	13.8	mg/L		6/7/21	2
21214465 sam	KRRC-SW05	Water	18.3	mg/L		6/7/21	2
21214467 sam	KRRC-SW06	Water	15.6	mg/L		6/7/21	2
21214469 sam	KRRC-SW04	Water	13.0	mg/L		6/7/21	2
21214461 du	KRRC-SW03	Water	11.2	mg/L		6/7/21	2
IW060121ABL blk	Blank	Liquid	0.30	mg/L	U	6/7/21	2

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214461 ms	KRRC-SW03	Water	97	%Rec		6/7/21	2
21214461 msd	KRRC-SW03	Water	102	%Rec		6/7/21	2
IW060121AL1 lcs	Lab Control Standard	Liquid	95	%Rec		6/7/21	2



US EPA Region 10 Laboratory

Multi-Analyte Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Sample : 21214450

Information : KRRC-SE01

Matrix : Sediment

Collected : 5/21/2021 2:30:00PM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	15100	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg		6/15/21	1
7440393	Barium	58.0	mg/Kg		6/15/21	1
7440417	Beryllium	0.28	mg/Kg		6/15/21	1
7440439	Cadmium	0.20	mg/Kg	U	6/15/21	1
7440702	Calcium	3870	mg/Kg	J	6/15/21	1
7440473	Chromium	30.8	mg/Kg		6/15/21	1
7440484	Cobalt	9.53	mg/Kg		6/15/21	1
7440508	Copper	20.6	mg/Kg		6/15/21	1
7439896	Iron	17200	mg/Kg		6/15/21	1
7439921	Lead	58.4	mg/Kg		6/15/21	1
7439954	Magnesium	5690	mg/Kg		6/15/21	1
7439965	Manganese	507	mg/Kg	J	6/15/21	1
7440020	Nickel	44.3	mg/Kg		6/15/21	1
7440097	Potassium	280	mg/Kg		6/15/21	1
7782492	Selenium	4.9	mg/Kg	U	6/15/21	1
7440224	Silver	0.99	mg/Kg	U	6/15/21	1
7440235	Sodium	181	mg/Kg		6/15/21	1
7440280	Thallium	4.9	mg/Kg	U	6/15/21	1
7440622	Vanadium	50.5	mg/Kg		6/15/21	1
7440666	Zinc	49.4	mg/Kg		6/15/21	1

Sample : 21214451

Information : KRRC-SE02

Matrix : Sediment

Collected : 5/21/2021 1:15:00PM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	13600	mg/Kg		6/15/21	5
7440360	Antimony	1.9	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.3	mg/Kg	U	6/15/21	1
7440393	Barium	19.9	mg/Kg		6/15/21	1
7440417	Beryllium	0.470	mg/Kg		6/15/21	1
7440439	Cadmium	0.94	mg/Kg	U	6/15/21	5
7440702	Calcium	3960	mg/Kg	J	6/15/21	5
7440473	Chromium	18.2	mg/Kg		6/15/21	1
7440484	Cobalt	3.55	mg/Kg		6/15/21	1
7440508	Copper	9.73	mg/Kg		6/15/21	1
7439896	Iron	11000	mg/Kg		6/15/21	5
7439921	Lead	4.7	mg/Kg		6/15/21	1
7439954	Magnesium	3100	mg/Kg		6/15/21	5
7439965	Manganese	136	mg/Kg	J	6/15/21	1
7440020	Nickel	18.4	mg/Kg		6/15/21	5
7440097	Potassium	330	mg/Kg	U	6/15/21	5
7782492	Selenium	4.7	mg/Kg	U	6/15/21	1
7440224	Silver	0.94	mg/Kg	U	6/15/21	1
7440235	Sodium	71	mg/Kg		6/15/21	5
7440280	Thallium	4.7	mg/Kg	U	6/15/21	1
7440622	Vanadium	32.7	mg/Kg		6/15/21	1
7440666	Zinc	18.7	mg/Kg		6/15/21	5

Sample : 21214452

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 10:05:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	18400	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	60.7	mg/Kg		6/15/21	1
7440417	Beryllium	0.41	mg/Kg		6/15/21	1
7440439	Cadmium	0.24	mg/Kg		6/15/21	1
7440702	Calcium	3340	mg/Kg	J	6/15/21	1
7440473	Chromium	27.4	mg/Kg		6/15/21	1
7440484	Cobalt	6.33	mg/Kg		6/15/21	1
7440508	Copper	16.9	mg/Kg		6/15/21	1
7439896	Iron	8430	mg/Kg		6/15/21	1
7439921	Lead	75.6	mg/Kg		6/15/21	1
7439954	Magnesium	2050	mg/Kg		6/15/21	1
7439965	Manganese	798	mg/Kg	J	6/15/21	1
7440020	Nickel	20.7	mg/Kg		6/15/21	1
7440097	Potassium	230	mg/Kg		6/15/21	1
7782492	Selenium	4.9	mg/Kg	U	6/15/21	1
7440224	Silver	0.99	mg/Kg	U	6/15/21	1
7440235	Sodium	82.1	mg/Kg		6/15/21	1
7440280	Thallium	4.9	mg/Kg	U	6/15/21	1
7440622	Vanadium	29.4	mg/Kg		6/15/21	1
7440666	Zinc	43.5	mg/Kg		6/15/21	1

Sample : 21214453

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	12400	mg/Kg		6/15/21	1
7440360	Antimony	1.8	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.3	mg/Kg	U	6/15/21	1
7440393	Barium	33.2	mg/Kg		6/15/21	1
7440417	Beryllium	0.29	mg/Kg		6/15/21	1
7440439	Cadmium	0.18	mg/Kg	U	6/15/21	1
7440702	Calcium	2990	mg/Kg	J	6/15/21	1
7440473	Chromium	26.3	mg/Kg		6/15/21	1
7440484	Cobalt	5.06	mg/Kg		6/15/21	1
7440508	Copper	7.45	mg/Kg		6/15/21	1
7439896	Iron	14100	mg/Kg		6/15/21	1
7439921	Lead	13.6	mg/Kg		6/15/21	1
7439954	Magnesium	3900	mg/Kg		6/15/21	1
7439965	Manganese	234	mg/Kg	J	6/15/21	1
7440020	Nickel	22.7	mg/Kg		6/15/21	1
7440097	Potassium	180	mg/Kg		6/15/21	1
7782492	Selenium	4.5	mg/Kg	U	6/15/21	1
7440224	Silver	0.91	mg/Kg	U	6/15/21	1
7440235	Sodium	64.1	mg/Kg		6/15/21	1
7440280	Thallium	4.5	mg/Kg	U	6/15/21	1
7440622	Vanadium	44.1	mg/Kg		6/15/21	1
7440666	Zinc	23.8	mg/Kg		6/15/21	1

Sample : 21214454

Information : KRRC-SE05

Matrix : Sediment

Collected : 5/21/2021 8:30:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	9130	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	21.2	mg/Kg		6/15/21	1
7440417	Beryllium	0.16	mg/Kg		6/15/21	1
7440439	Cadmium	0.20	mg/Kg	U	6/15/21	1
7440702	Calcium	3860	mg/Kg	J	6/15/21	1
7440473	Chromium	24.0	mg/Kg		6/15/21	1
7440484	Cobalt	3.49	mg/Kg		6/15/21	1
7440508	Copper	8.77	mg/Kg		6/15/21	1
7439896	Iron	10500	mg/Kg		6/15/21	1
7439921	Lead	21.6	mg/Kg		6/15/21	1
7439954	Magnesium	3760	mg/Kg		6/15/21	1
7439965	Manganese	142	mg/Kg	J	6/15/21	1
7440020	Nickel	23.4	mg/Kg		6/15/21	1
7440097	Potassium	200	mg/Kg		6/15/21	1
7782492	Selenium	5.1	mg/Kg	U	6/15/21	1
7440224	Silver	1.0	mg/Kg	U	6/15/21	1
7440235	Sodium	73.1	mg/Kg		6/15/21	1
7440280	Thallium	5.1	mg/Kg	U	6/15/21	1
7440622	Vanadium	32.7	mg/Kg		6/15/21	1
7440666	Zinc	24.0	mg/Kg		6/15/21	1

Sample : 21214455

Information : KRRC-SE06

Matrix : Sediment

Collected : 5/21/2021 12:35:00PM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	7570	mg/Kg		6/15/21	1
7440360	Antimony	1.9	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.3	mg/Kg	U	6/15/21	1
7440393	Barium	63.6	mg/Kg		6/15/21	1
7440417	Beryllium	0.21	mg/Kg		6/15/21	1
7440439	Cadmium	0.19	mg/Kg	U	6/15/21	1
7440702	Calcium	4020	mg/Kg	J	6/15/21	1
7440473	Chromium	13.5	mg/Kg		6/15/21	1
7440484	Cobalt	1.3	mg/Kg		6/15/21	1
7440508	Copper	5.58	mg/Kg		6/15/21	1
7439896	Iron	3780	mg/Kg		6/15/21	1
7439921	Lead	11.9	mg/Kg		6/15/21	1
7439954	Magnesium	1040	mg/Kg		6/15/21	1
7439965	Manganese	67.9	mg/Kg	J	6/15/21	1
7440020	Nickel	12.5	mg/Kg		6/15/21	1
7440097	Potassium	180	mg/Kg		6/15/21	1
7782492	Selenium	4.7	mg/Kg	U	6/15/21	1
7440224	Silver	0.93	mg/Kg	U	6/15/21	1
7440235	Sodium	70.5	mg/Kg		6/15/21	1
7440280	Thallium	4.7	mg/Kg	U	6/15/21	1
7440622	Vanadium	13.6	mg/Kg		6/15/21	1
7440666	Zinc	5.99	mg/Kg		6/15/21	1

Sample : 21214456

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 11:30:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	17500	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	54.5	mg/Kg		6/15/21	1
7440417	Beryllium	0.39	mg/Kg		6/15/21	1
7440439	Cadmium	0.20	mg/Kg		6/15/21	1
7440702	Calcium	3450	mg/Kg	J	6/15/21	1
7440473	Chromium	25.9	mg/Kg		6/15/21	1
7440484	Cobalt	6.43	mg/Kg		6/15/21	1
7440508	Copper	16.5	mg/Kg		6/15/21	1
7439896	Iron	8910	mg/Kg		6/15/21	1
7439921	Lead	69.6	mg/Kg		6/15/21	1
7439954	Magnesium	2300	mg/Kg		6/15/21	1
7439965	Manganese	738	mg/Kg	J	6/15/21	1
7440020	Nickel	20.9	mg/Kg		6/15/21	1
7440097	Potassium	230	mg/Kg		6/15/21	1
7782492	Selenium	4.9	mg/Kg	U	6/15/21	1
7440224	Silver	0.99	mg/Kg	U	6/15/21	1
7440235	Sodium	90.4	mg/Kg		6/15/21	1
7440280	Thallium	4.9	mg/Kg	U	6/15/21	1
7440622	Vanadium	30.0	mg/Kg		6/15/21	1
7440666	Zinc	40.7	mg/Kg		6/15/21	1

Sample : 21214459

Information : KRRC-SW02

Matrix : Water

Collected : 5/21/2021 1:15:00PM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.28	ug/L	U	6/16/21	2
7440439	Cadmium	0.059	ug/L	U	6/16/21	2
7440508	Copper	1.20	ug/L	U	6/16/21	2
7439921	Lead	4.97	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	646	ug/L	J	6/ 7/21	2
7440393	Barium	15.1	ug/L	U	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	3810	ug/L	U	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	1310	ug/L	U	6/ 7/21	2
7439954	Magnesium	1350	ug/L	U	6/ 7/21	2
7439965	Manganese	233	ug/L	U	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1840	ug/L	U	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	8.2	ug/L	U	6/ 7/21	2

Sample : 21214460

Information : KRRC-SW02

Matrix : Filtered

Collected : 5/21/2021 1:15:00PM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.25	ug/L		6/16/21	2
7439921	Lead	0.11	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/7/21	2
7440393	Barium	3.4	ug/L	U	6/7/21	2
7440417	Beryllium	1.0	ug/L	U	6/7/21	2
7440702	Calcium	2930	ug/L	U	6/7/21	2
7440473	Chromium	5.0	ug/L	U	6/7/21	2
7440484	Cobalt	5.0	ug/L	U	6/7/21	2
7439896	Iron	101	ug/L	U	6/7/21	2
7439954	Magnesium	1200	ug/L	U	6/7/21	2
7439965	Manganese	49.1	ug/L	U	6/7/21	2
7440020	Nickel	5.0	ug/L	U	6/7/21	2
7440097	Potassium	700	ug/L	U	6/7/21	2
7782492	Selenium	50	ug/L	U	6/7/21	2
7440224	Silver	10	ug/L	U	6/7/21	2
7440235	Sodium	1930	ug/L	U	6/7/21	2
7440280	Thallium	50	ug/L	U	6/7/21	2
7440622	Vanadium	5.0	ug/L	U	6/7/21	2
7440666	Zinc	5.0	ug/L	U	6/7/21	2

Sample : 21214461

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.43	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.72	ug/L	U	6/16/21	2
7439921	Lead	4.61	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	789	ug/L	J	6/ 7/21	2
7440393	Barium	9.82	ug/L	J	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2820	ug/L	J	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	554	ug/L	J	6/ 7/21	2
7439954	Magnesium	1040	ug/L	J	6/ 7/21	2
7439965	Manganese	397	ug/L	J	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1640	ug/L	J	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.7	ug/L	J	6/ 7/21	2

Sample : 21214462

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.32	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.03	ug/L		6/16/21	2
7439921	Lead	0.907	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	130	ug/L		6/ 7/21	2
7440393	Barium	4.9	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2540	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	228	ug/L		6/ 7/21	2
7439954	Magnesium	945	ug/L		6/ 7/21	2
7439965	Manganese	168	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1610	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214463

Information : KRRC-SW04

Matrix : Water

Collected : 5/21/2021 9:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.28	ug/L	U	6/16/21	2
7440439	Cadmium	0.074	ug/L	U	6/16/21	2
7440508	Copper	0.81	ug/L	U	6/16/21	2
7439921	Lead	1.91	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	490	ug/L	J	6/ 7/21	2
7440393	Barium	29.1	ug/L	U	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	3320	ug/L	U	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	509	ug/L	U	6/ 7/21	2
7439954	Magnesium	1330	ug/L	U	6/ 7/21	2
7439965	Manganese	2360	ug/L	U	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2890	ug/L	U	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	19	ug/L	U	6/ 7/21	2

Sample : 21214464

Information : KRRC-SW04

Matrix : Filtered

Collected : 5/21/2021 9:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.51	ug/L		6/16/21	2
7439921	Lead	0.585	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	7.85	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2930	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	190	ug/L		6/ 7/21	2
7439954	Magnesium	1180	ug/L		6/ 7/21	2
7439965	Manganese	299	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2680	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	16	ug/L		6/ 7/21	2

Sample : 21214465

Information : KRRC-SW05

Matrix : Water

Collected : 5/21/2021 8:30:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.20	ug/L	U	6/16/21	2
7439921	Lead	0.20	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	4.8	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	4540	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	153	ug/L		6/ 7/21	2
7439954	Magnesium	1680	ug/L		6/ 7/21	2
7439965	Manganese	123	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2760	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214466

Information : KRRC-SW05

Matrix : Filtered

Collected : 5/21/2021 8:30:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.32	ug/L	U	6/16/21	2
7439921	Lead	0.076	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/7/21	2
7440393	Barium	4.9	ug/L	U	6/7/21	2
7440417	Beryllium	1.0	ug/L	U	6/7/21	2
7440702	Calcium	4790	ug/L	U	6/7/21	2
7440473	Chromium	5.0	ug/L	U	6/7/21	2
7440484	Cobalt	5.0	ug/L	U	6/7/21	2
7439896	Iron	83	ug/L	U	6/7/21	2
7439954	Magnesium	1760	ug/L	U	6/7/21	2
7439965	Manganese	93.3	ug/L	U	6/7/21	2
7440020	Nickel	5.0	ug/L	U	6/7/21	2
7440097	Potassium	700	ug/L	U	6/7/21	2
7782492	Selenium	50	ug/L	U	6/7/21	2
7440224	Silver	10	ug/L	U	6/7/21	2
7440235	Sodium	2890	ug/L	U	6/7/21	2
7440280	Thallium	50	ug/L	U	6/7/21	2
7440622	Vanadium	5.0	ug/L	U	6/7/21	2
7440666	Zinc	5.0	ug/L	U	6/7/21	2

Sample : 21214467

Information : KRRC-SW06

Matrix : Water

Collected : 5/21/2021 12:35:00PM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.23	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.52	ug/L	U	6/16/21	2
7439921	Lead	5.89	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	664	ug/L	J	6/ 7/21	2
7440393	Barium	16.1	ug/L	U	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	4370	ug/L	U	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	472	ug/L	U	6/ 7/21	2
7439954	Magnesium	1150	ug/L	U	6/ 7/21	2
7439965	Manganese	51.8	ug/L	U	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1910	ug/L	U	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.9	ug/L	U	6/ 7/21	2

Sample : 21214468

Information : KRRC-SW06

Matrix : Filtered

Collected : 5/21/2021 12:35:00PM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.35	ug/L		6/16/21	2
7439921	Lead	0.14	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/7/21	2
7440393	Barium	3.6	ug/L		6/7/21	2
7440417	Beryllium	1.0	ug/L	U	6/7/21	2
7440702	Calcium	2420	ug/L		6/7/21	2
7440473	Chromium	5.0	ug/L	U	6/7/21	2
7440484	Cobalt	5.0	ug/L	U	6/7/21	2
7439896	Iron	71	ug/L		6/7/21	2
7439954	Magnesium	865	ug/L		6/7/21	2
7439965	Manganese	13.0	ug/L		6/7/21	2
7440020	Nickel	5.0	ug/L	U	6/7/21	2
7440097	Potassium	700	ug/L	U	6/7/21	2
7782492	Selenium	50	ug/L	U	6/7/21	2
7440224	Silver	10	ug/L	U	6/7/21	2
7440235	Sodium	1840	ug/L		6/7/21	2
7440280	Thallium	50	ug/L	U	6/7/21	2
7440622	Vanadium	5.0	ug/L	U	6/7/21	2
7440666	Zinc	5.0	ug/L	U	6/7/21	2

Sample : 21214469

Information : KRRC-SW04

Matrix : Water

Collected : 5/21/2021 11:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.24	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.70	ug/L		6/16/21	2
7439921	Lead	1.28	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	320	ug/L	J	6/ 7/21	2
7440393	Barium	22.2	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	3140	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	373	ug/L		6/ 7/21	2
7439954	Magnesium	1260	ug/L		6/ 7/21	2
7439965	Manganese	1530	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2780	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	14	ug/L		6/ 7/21	2

Sample : 21214470

Information : KRRC-SW04

Matrix : Filtered

Collected : 5/21/2021 11:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.43	ug/L		6/16/21	2
7439921	Lead	0.487	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/7/21	2
7440393	Barium	9.17	ug/L		6/7/21	2
7440417	Beryllium	1.0	ug/L	U	6/7/21	2
7440702	Calcium	3020	ug/L		6/7/21	2
7440473	Chromium	5.0	ug/L	U	6/7/21	2
7440484	Cobalt	5.0	ug/L	U	6/7/21	2
7439896	Iron	167	ug/L		6/7/21	2
7439954	Magnesium	1220	ug/L		6/7/21	2
7439965	Manganese	250	ug/L		6/7/21	2
7440020	Nickel	5.0	ug/L	U	6/7/21	2
7440097	Potassium	700	ug/L	U	6/7/21	2
7782492	Selenium	50	ug/L	U	6/7/21	2
7440224	Silver	10	ug/L	U	6/7/21	2
7440235	Sodium	2810	ug/L		6/7/21	2
7440280	Thallium	50	ug/L	U	6/7/21	2
7440622	Vanadium	5.0	ug/L	U	6/7/21	2
7440666	Zinc	6.4	ug/L		6/7/21	2

Sample : 21214453 Sample Duplicate

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	11800	mg/Kg		6/15/21	1
7440360	Antimony	2.1	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.6	mg/Kg	U	6/15/21	1
7440393	Barium	30.2	mg/Kg		6/15/21	1
7440417	Beryllium	0.28	mg/Kg		6/15/21	1
7440439	Cadmium	0.21	mg/Kg	U	6/15/21	1
7440702	Calcium	3110	mg/Kg	J	6/15/21	1
7440473	Chromium	26.8	mg/Kg		6/15/21	1
7440484	Cobalt	4.40	mg/Kg		6/15/21	1
7440508	Copper	7.26	mg/Kg		6/15/21	1
7439896	Iron	13100	mg/Kg		6/15/21	1
7439921	Lead	13.7	mg/Kg		6/15/21	1
7439954	Magnesium	3500	mg/Kg		6/15/21	1
7439965	Manganese	218	mg/Kg	J	6/15/21	1
7440020	Nickel	22.4	mg/Kg		6/15/21	1
7440097	Potassium	180	mg/Kg		6/15/21	1
7782492	Selenium	5.2	mg/Kg	U	6/15/21	1
7440224	Silver	1.0	mg/Kg	U	6/15/21	1
7440235	Sodium	63.0	mg/Kg		6/15/21	1
7440280	Thallium	5.2	mg/Kg	U	6/15/21	1
7440622	Vanadium	42.5	mg/Kg		6/15/21	1
7440666	Zinc	22.6	mg/Kg		6/15/21	1

Sample : 21214461 Sample Duplicate

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.41	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.69	ug/L	U	6/16/21	2
7439921	Lead	4.72	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	788	ug/L	J	6/ 7/21	2
7440393	Barium	9.76	ug/L	U	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2800	ug/L	U	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	551	ug/L	U	6/ 7/21	2
7439954	Magnesium	1040	ug/L	U	6/ 7/21	2
7439965	Manganese	398	ug/L	U	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1640	ug/L	U	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.6	ug/L	U	6/ 7/21	2

Sample : 21214462 Sample Duplicate

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.35	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.00	ug/L	U	6/16/21	2
7439921	Lead	0.899	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	130	ug/L	U	6/7/21	2
7440393	Barium	4.9	ug/L	U	6/7/21	2
7440417	Beryllium	1.0	ug/L	U	6/7/21	2
7440702	Calcium	2540	ug/L	U	6/7/21	2
7440473	Chromium	5.0	ug/L	U	6/7/21	2
7440484	Cobalt	5.0	ug/L	U	6/7/21	2
7439896	Iron	227	ug/L	U	6/7/21	2
7439954	Magnesium	944	ug/L	U	6/7/21	2
7439965	Manganese	169	ug/L	U	6/7/21	2
7440020	Nickel	5.0	ug/L	U	6/7/21	2
7440097	Potassium	700	ug/L	U	6/7/21	2
7782492	Selenium	50	ug/L	U	6/7/21	2
7440224	Silver	10	ug/L	U	6/7/21	2
7440235	Sodium	1620	ug/L	U	6/7/21	2
7440280	Thallium	50	ug/L	U	6/7/21	2
7440622	Vanadium	5.0	ug/L	U	6/7/21	2
7440666	Zinc	5.0	ug/L	U	6/7/21	2

Sample : 21214453 Matrix Spike

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	6/15/21	1
7440360	Antimony	44	%Rec		6/15/21	1
7440382	Arsenic	101	%Rec		6/15/21	1
7440393	Barium	94	%Rec		6/15/21	1
7440417	Beryllium	95	%Rec		6/15/21	1
7440439	Cadmium	85	%Rec		6/15/21	1
7440702	Calcium	129	%Rec		6/15/21	1
7440473	Chromium	102	%Rec		6/15/21	1
7440484	Cobalt	92	%Rec		6/15/21	1
7440508	Copper	97	%Rec		6/15/21	1
7439896	Iron			NA	6/15/21	1
7439921	Lead	91	%Rec		6/15/21	1
7439954	Magnesium	90	%Rec		6/15/21	1
7439965	Manganese	106	%Rec		6/15/21	1
7440020	Nickel	85	%Rec		6/15/21	1
7440097	Potassium	96	%Rec		6/15/21	1
7782492	Selenium	93	%Rec		6/15/21	1
7440224	Silver	94	%Rec		6/15/21	1
7440235	Sodium	91	%Rec		6/15/21	1
7440280	Thallium	98	%Rec		6/15/21	1
7440622	Vanadium	101	%Rec		6/15/21	1
7440666	Zinc	85	%Rec		6/15/21	1

Sample : 21214461 Matrix Spike

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	94	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	99	%Rec		6/16/21	2
7440508	Copper	99	%Rec		6/16/21	2
7439921	Lead	110	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	118	%Rec		6/ 7/21	2
7440393	Barium	99	%Rec		6/ 7/21	2
7440417	Beryllium	100	%Rec		6/ 7/21	2
7440702	Calcium	97	%Rec		6/ 7/21	2
7440473	Chromium	96	%Rec		6/ 7/21	2
7440484	Cobalt	97	%Rec		6/ 7/21	2
7439896	Iron	110	%Rec		6/ 7/21	2
7439954	Magnesium	96	%Rec		6/ 7/21	2
7439965	Manganese	101	%Rec		6/ 7/21	2
7440020	Nickel	97	%Rec		6/ 7/21	2
7440097	Potassium	101	%Rec		6/ 7/21	2
7782492	Selenium	103	%Rec		6/ 7/21	2
7440224	Silver	94	%Rec		6/ 7/21	2
7440235	Sodium	96	%Rec		6/ 7/21	2
7440280	Thallium	100	%Rec		6/ 7/21	2
7440622	Vanadium	99	%Rec		6/ 7/21	2
7440666	Zinc	101	%Rec		6/ 7/21	2

Sample : 21214462 Matrix Spike

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	100	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	99	%Rec		6/16/21	2
7440508	Copper	100	%Rec		6/16/21	2
7439921	Lead	109	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	103	%Rec		6/ 7/21	2
7440393	Barium	99	%Rec		6/ 7/21	2
7440417	Beryllium	100	%Rec		6/ 7/21	2
7440702	Calcium	96	%Rec		6/ 7/21	2
7440473	Chromium	95	%Rec		6/ 7/21	2
7440484	Cobalt	99	%Rec		6/ 7/21	2
7439896	Iron	101	%Rec		6/ 7/21	2
7439954	Magnesium	96	%Rec		6/ 7/21	2
7439965	Manganese	94	%Rec		6/ 7/21	2
7440020	Nickel	100	%Rec		6/ 7/21	2
7440097	Potassium	101	%Rec		6/ 7/21	2
7782492	Selenium	106	%Rec		6/ 7/21	2
7440224	Silver	94	%Rec		6/ 7/21	2
7440235	Sodium	95	%Rec		6/ 7/21	2
7440280	Thallium	103	%Rec		6/ 7/21	2
7440622	Vanadium	98	%Rec		6/ 7/21	2
7440666	Zinc	104	%Rec		6/ 7/21	2

Sample : 21214453 Matrix Spike#2

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	6/15/21	1
7440360	Antimony	43	%Rec		6/15/21	1
7440382	Arsenic	101	%Rec		6/15/21	1
7440393	Barium	87	%Rec		6/15/21	1
7440417	Beryllium	96	%Rec		6/15/21	1
7440439	Cadmium	84	%Rec		6/15/21	1
7440702	Calcium	143	%Rec		6/15/21	1
7440473	Chromium	99	%Rec		6/15/21	1
7440484	Cobalt	90	%Rec		6/15/21	1
7440508	Copper	99	%Rec		6/15/21	1
7439896	Iron			NA	6/15/21	1
7439921	Lead	89	%Rec		6/15/21	1
7439954	Magnesium	87	%Rec		6/15/21	1
7439965	Manganese	138	%Rec		6/15/21	1
7440020	Nickel	83	%Rec		6/15/21	1
7440097	Potassium	93	%Rec		6/15/21	1
7782492	Selenium	90	%Rec		6/15/21	1
7440224	Silver	93	%Rec		6/15/21	1
7440235	Sodium	89	%Rec		6/15/21	1
7440280	Thallium	97	%Rec		6/15/21	1
7440622	Vanadium	123	%Rec		6/15/21	1
7440666	Zinc	84	%Rec		6/15/21	1

Sample : 21214461 Matrix Spike#2

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	92	%Rec		6/16/21	2
7440382	Arsenic	99	%Rec		6/16/21	2
7440439	Cadmium	98	%Rec		6/16/21	2
7440508	Copper	96	%Rec		6/16/21	2
7439921	Lead	108	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	128	%Rec		6/ 7/21	2
7440393	Barium	104	%Rec		6/ 7/21	2
7440417	Beryllium	105	%Rec		6/ 7/21	2
7440702	Calcium	103	%Rec		6/ 7/21	2
7440473	Chromium	100	%Rec		6/ 7/21	2
7440484	Cobalt	102	%Rec		6/ 7/21	2
7439896	Iron	123	%Rec		6/ 7/21	2
7439954	Magnesium	102	%Rec		6/ 7/21	2
7439965	Manganese	116	%Rec		6/ 7/21	2
7440020	Nickel	103	%Rec		6/ 7/21	2
7440097	Potassium	106	%Rec		6/ 7/21	2
7782492	Selenium	108	%Rec		6/ 7/21	2
7440224	Silver	97	%Rec		6/ 7/21	2
7440235	Sodium	101	%Rec		6/ 7/21	2
7440280	Thallium	105	%Rec		6/ 7/21	2
7440622	Vanadium	103	%Rec		6/ 7/21	2
7440666	Zinc	106	%Rec		6/ 7/21	2

Sample : 21214462 Matrix Spike#2

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	100	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	101	%Rec		6/16/21	2
7440508	Copper	99	%Rec		6/16/21	2
7439921	Lead	110	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	107	%Rec		6/ 7/21	2
7440393	Barium	103	%Rec		6/ 7/21	2
7440417	Beryllium	105	%Rec		6/ 7/21	2
7440702	Calcium	101	%Rec		6/ 7/21	2
7440473	Chromium	100	%Rec		6/ 7/21	2
7440484	Cobalt	100	%Rec		6/ 7/21	2
7439896	Iron	105	%Rec		6/ 7/21	2
7439954	Magnesium	100	%Rec		6/ 7/21	2
7439965	Manganese	99	%Rec		6/ 7/21	2
7440020	Nickel	101	%Rec		6/ 7/21	2
7440097	Potassium	103	%Rec		6/ 7/21	2
7782492	Selenium	106	%Rec		6/ 7/21	2
7440224	Silver	95	%Rec		6/ 7/21	2
7440235	Sodium	99	%Rec		6/ 7/21	2
7440280	Thallium	104	%Rec		6/ 7/21	2
7440622	Vanadium	103	%Rec		6/ 7/21	2
7440666	Zinc	105	%Rec		6/ 7/21	2

Sample : IS061421ABL Blank

Information : Blank

Matrix : Solid

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	mg/Kg	U	6/15/21	1
7440360	Antimony	2.0	mg/Kg	U	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	0.10	mg/Kg	U	6/15/21	1
7440417	Beryllium	0.10	mg/Kg	U	6/15/21	1
7440439	Cadmium	0.20	mg/Kg	U	6/15/21	1
7440702	Calcium	5.0	mg/Kg	U	6/15/21	1
7440473	Chromium	0.50	mg/Kg	U	6/15/21	1
7440484	Cobalt	0.50	mg/Kg	U	6/15/21	1
7440508	Copper	0.50	mg/Kg	U	6/15/21	1
7439896	Iron	5.0	mg/Kg	U	6/15/21	1
7439921	Lead	2.5	mg/Kg	U	6/15/21	1
7439954	Magnesium	5.0	mg/Kg	U	6/15/21	1
7439965	Manganese	0.20	mg/Kg	U	6/15/21	1
7440020	Nickel	0.50	mg/Kg	U	6/15/21	1
7440097	Potassium	70	mg/Kg	U	6/15/21	1
7782492	Selenium	5.0	mg/Kg	U	6/15/21	1
7440224	Silver	1.0	mg/Kg	U	6/15/21	1
7440235	Sodium	10	mg/Kg	U	6/15/21	1
7440280	Thallium	5.0	mg/Kg	U	6/15/21	1
7440622	Vanadium	0.50	mg/Kg	U	6/15/21	1
7440666	Zinc	2.0	mg/Kg	U	6/15/21	1

Sample : IW060121ABL Blank

Information : Blank

Matrix : Liquid

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.20	ug/L	U	6/16/21	2
7439921	Lead	0.050	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	1.0	ug/L	U	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	50	ug/L	U	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	20	ug/L	U	6/ 7/21	2
7439954	Magnesium	50	ug/L	U	6/ 7/21	2
7439965	Manganese	2.0	ug/L	U	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	100	ug/L	U	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : IS061421AL1 Lab Control Std

Information : Lab Control Standard

Matrix : Solid

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		6/15/21	1
7440360	Antimony	98	%Rec		6/15/21	1
7440382	Arsenic	99	%Rec		6/15/21	1
7440393	Barium	101	%Rec		6/15/21	1
7440417	Beryllium	94	%Rec		6/15/21	1
7440439	Cadmium	95	%Rec		6/15/21	1
7440702	Calcium	98	%Rec		6/15/21	1
7440473	Chromium	94	%Rec		6/15/21	1
7440484	Cobalt	96	%Rec		6/15/21	1
7440508	Copper	94	%Rec		6/15/21	1
7439896	Iron	103	%Rec		6/15/21	1
7439921	Lead	97	%Rec		6/15/21	1
7439954	Magnesium	99	%Rec		6/15/21	1
7439965	Manganese	91	%Rec		6/15/21	1
7440020	Nickel	96	%Rec		6/15/21	1
7440097	Potassium	98	%Rec		6/15/21	1
7782492	Selenium	99	%Rec		6/15/21	1
7440224	Silver	93	%Rec		6/15/21	1
7440235	Sodium	95	%Rec		6/15/21	1
7440280	Thallium	99	%Rec		6/15/21	1
7440622	Vanadium	97	%Rec		6/15/21	1
7440666	Zinc	97	%Rec		6/15/21	1

Sample : IW060121AL1 Lab Control Std

Information : Lab Control Standard

Matrix : Liquid

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	99	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	99	%Rec		6/16/21	2
7440508	Copper	97	%Rec		6/16/21	2
7439921	Lead	110	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		6/7/21	2
7440393	Barium	96	%Rec		6/7/21	2
7440417	Beryllium	98	%Rec		6/7/21	2
7440702	Calcium	95	%Rec		6/7/21	2
7440473	Chromium	94	%Rec		6/7/21	2
7440484	Cobalt	97	%Rec		6/7/21	2
7439896	Iron	97	%Rec		6/7/21	2
7439954	Magnesium	95	%Rec		6/7/21	2
7439965	Manganese	95	%Rec		6/7/21	2
7440020	Nickel	99	%Rec		6/7/21	2
7440097	Potassium	96	%Rec		6/7/21	2
7782492	Selenium	105	%Rec		6/7/21	2
7440224	Silver	91	%Rec		6/7/21	2
7440235	Sodium	96	%Rec		6/7/21	2
7440280	Thallium	102	%Rec		6/7/21	2
7440622	Vanadium	97	%Rec		6/7/21	2
7440666	Zinc	103	%Rec		6/7/21	2



Weston Solutions, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134
WestonSolutions.com

March 16, 2022

MEMORANDUM

To: Stephen Nguyen, Superfund Technical Assessment and Response Team (START)-V
Project Team Leader, Weston Solutions, Inc. (WESTON), Seattle, Washington

From: Mark Woodke, START-V Project Chemist, WESTON, *MW*
Seattle, Washington

Re: MEL Mercury Data Summary Check, SFP-174A
Kitsap Rifle and Revolver Club Site Reassessment
Bremerton, Kitsap County, Washington
Contract Number: 68HE0720D0005
Task Order, Subtask Number: 68HE0720F0160-008

The data summary check of seven sediment samples and 12 water samples collected from the above referenced site has been completed. The samples were analyzed for total and/or dissolved mercury by the U.S. Environmental Protection Agency (EPA) Region 10 Laboratory in Port Orchard, WA, following EPA Methods 245.1 (water) and 7471B (soil). All sample analyses were evaluated following EPA's Stage 4 Data Validation Electronic Process (S4VM).

The samples were numbered:

Mercury in Sediments

21214450	21214451	21214452	21214453	21214454	21214455
21214456					

Mercury in Total Waters

21214459	21214461	21214463	21214465	21214467	21214469
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Mercury in Dissolved (Filtered) Waters

21214460	21214462	21214464	21214466	21214468	21214470
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No discrepancies were noted. Note: there were no estimated results in this data package, therefore bias qualifiers for estimated results were not required.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT: Data Release for Inorganic Results from the USEPA Region 10 Laboratory

PROJECT NAME: Kitsap Rifle & Revolver

PROJECT CODE: SFP-174A

GERALD
DODO

Digitally signed by
GERALD DODO
Date: 2021.07.12
07:19:39 -07'00'

FROM: Gerald Dodo, Chemistry Supervisor
Laboratory Services & Applied Science Division
USEPA Region 10 Laboratory

TO: Bradon Perkins, Project Manager
Superfund & Emergency Management Division
USEPA Region 10

I have authorized release of this data package. Attached you will find the Mercury results (sediments, waters and filtered waters) for the Kitsap Rifle & Revolver project for the samples received on 05/24/2021. For further information regarding the attached data, contact Katie Adams at 360-871-8748.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Drive East
Port Orchard, Washington 98366

**QUALITY ASSURANCE MEMORANDUM
FOR INORGANIC CHEMICAL ANALYSES**

July 7, 2021

From: Stephanie Le STEPHANIE LE 
Laboratory Services & Applied Sciences Division, US EPA Region 10 Laboratory

To: Brandon Perkins
RE: Kitsap Rifle & Revolver
Project Code: SFP-174A
Account Code: 2021T10P000FD210ZZLA00

Mercury in Sediments

21214450	21214451	21214452	21214453	21214454	21214455
21214456					

Mercury in Total Waters

21214459	21214461	21214463	21214465	21214467	21214469

Mercury in Dissolved (Filtered) Waters

21214460	21214462	21214464	21214466	21214468	21214470

The following describes the quality assurance review of the data for the analysis parameters and samples listed above. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

1. Data Qualifications

The US EPA Region 10 Laboratory has been accredited by A2LA and has Certificate Number 5027.01. For those tests for which the Laboratory has been accredited by A2LA, results in this report comply with ISO IEC 17025:2017 and the 2009 TNI Environmental Testing Laboratory Standard.

Field information was provided to the laboratory from other sources, such as Chain of Custody records.

The data and associated documents were reviewed against the quality control criteria outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The following areas were reviewed against these quality control measures:

- Sample Transport and Receipt
- Sample Holding Times
- Sample Preparation
- Initial Calibration/Continuing Calibration Verification
- Laboratory Control Samples
- Blank Analysis
- Duplicate Analysis
- Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- Reference Materials

2. QC Elements Not Meeting Laboratory/QAPP Criteria

None.

3. Changes from Preliminary Data

Mercury in sediments results were reported in preliminary results on a wet weight basis. For final results, these results have been corrected to be reported on a dry weight basis, per our standard laboratory practice.

4. Data Qualifiers

Data for all samples and analytes were assessed for compliance with each of the requirements described in Section 1. Data qualifiers were assigned, as necessary, to alert the user to instances where data did not meet all requirements. In cases where more than one QC failure occurred, the most restrictive data qualifier has been applied to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier considering the project's data quality objectives. Should questions arise regarding the data, contact Katie Adams at the Region 10 Laboratory, phone number (360) 871-8748.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; however, the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte cannot be determined from the data due to severe quality control problems. The data are rejected and considered unusable. <u>No value is reported with this qualification.</u>
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. <u>No value is reported with this qualification.</u> †

† NA is most often applied to spike results where the recovery cannot be determined accurately due to the high native sample concentration.

US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Parameter(s): Hg

Analyte: 7439976 - Mercury

Weight Basis : N/A

Prep Method(s): 245.1 - Cold vapor mercury in water

Analytical Method: 245.1 - Cold vapor mercury in water (CVAAS)

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214459 sam	KRRC-SW02	Water	0.050	ug/L	U	5/27/21	1
21214460 sam	KRRC-SW02	Filtered	0.050	ug/L	U	5/27/21	1
21214461 sam	KRRC-SW03	Water	0.050	ug/L	U	5/27/21	1
21214462 sam	KRRC-SW03	Filtered	0.050	ug/L	U	5/27/21	1
21214463 sam	KRRC-SW04	Water	0.050	ug/L	U	5/27/21	1
21214464 sam	KRRC-SW04	Filtered	0.050	ug/L	U	5/27/21	1
21214465 sam	KRRC-SW05	Water	0.050	ug/L	U	5/27/21	1
21214466 sam	KRRC-SW05	Filtered	0.050	ug/L	U	5/27/21	1
21214467 sam	KRRC-SW06	Water	0.0512	ug/L		5/27/21	1
21214468 sam	KRRC-SW06	Filtered	0.050	ug/L	U	5/27/21	1
21214469 sam	KRRC-SW04	Water	0.050	ug/L	U	5/27/21	1
21214470 sam	KRRC-SW04	Filtered	0.050	ug/L	U	5/27/21	1
21214461 du	KRRC-SW03	Water	0.050	ug/L	U	5/27/21	1
21214462 du	KRRC-SW03	Filtered	0.050	ug/L	U	5/27/21	1
IW052621ABL blk	Blank	Liquid	0.050	ug/L	U	5/27/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214461 ms	KRRC-SW03	Water	105	%Rec		5/27/21	1
21214462 ms	KRRC-SW03	Filtered	99	%Rec		5/27/21	1
21214461 msd	KRRC-SW03	Water	105	%Rec		5/27/21	1
21214462 msd	KRRC-SW03	Filtered	101	%Rec		5/27/21	1
IW052621AL1 lcs	Lab Control Standard	Liquid	98	%Rec		5/27/21	1

Analyte: 7439976 - Mercury

Weight Basis : Dry

Prep Method(s): 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Analytical Method: 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214450 sam	KRRC-SE01	Sediment	0.0515	mg/Kg		5/25/21	1

Target Analyte Results (cont.):

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214451 sam	KRRC-SE02	Sediment	0.0532	mg/Kg		5/25/21	1
21214452 sam	KRRC-SE03	Sediment	0.0822	mg/Kg		5/25/21	1
21214453 sam	KRRC-SE04	Sediment	0.0278	mg/Kg		5/25/21	1
21214454 sam	KRRC-SE05	Sediment	0.0335	mg/Kg		5/25/21	1
21214455 sam	KRRC-SE06	Sediment	0.0380	mg/Kg		5/25/21	1
21214456 sam	KRRC-SE03	Sediment	0.0822	mg/Kg		5/25/21	1
21214453 du	KRRC-SE04	Sediment	0.0230	mg/Kg		5/25/21	1
IS052421ABL blk	Blank	Solid	0.010	mg/Kg	U	5/25/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214453 ms	KRRC-SE04	Sediment	92	%Rec		5/25/21	1
21214453 msd	KRRC-SE04	Sediment	95	%Rec		5/25/21	1
IS052421ACO std	Control	Solid	100	%Rec		5/25/21	40
IS052421AL1 lcs	Lab Control Standard	Solid	97	%Rec		5/25/21	1



Weston Solutions, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134
WestonSolutions.com

March 16, 2022

MEMORANDUM

To: Stephen Nguyen, Superfund Technical Assessment and Response Team (START)-V
Project Team Leader, Weston Solutions, Inc. (WESTON), Seattle, Washington

From: Mark Woodke, START-V Project Chemist, WESTON, *MW*
Seattle, Washington

Re: MEL PAH Data Summary Check, SFP-174C
Kitsap Rifle and Revolver Club Site Reassessment
Bremerton, Kitsap County, Washington
Contract Number: 68HE0720D0005
Task Order, Subtask Number: 68HE0720F0160-008

The data summary check of seven water samples and nine sediment samples collected from the above referenced site has been completed. The samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by the U.S. Environmental Protection Agency (EPA) Region 10 Laboratory in Port Orchard, WA, following EPA Method 8270E (Sediment) and EPA Method 8270E-SIM (water). All sample analyses were evaluated following EPA's Stage 4 Data Validation Electronic Process (S4VM).

The samples were numbered:

PAH Sediment

21464450	21464451	21464452	21464453	21464454	21464455
21464456	21464457	21464458			

PAH-SIM Water

21464459	21464461	21464463	21464465	21464467	21464469
21464471					

No discrepancies were noted. Note: there were no estimated results in this data package, therefore bias qualifiers for estimated results were not required.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

Subject: Data Release for Polyaromatic Hydrocarbon (PAH) Analyses from the USEPA Region 10 Laboratory

Project Name: KITSAP RIFLE & REVOLVER

Project Code: SFP-174C

From: Gerald Dodo
Laboratory Services & Applied Sciences Division
USEPA Region 10

To: Brandon Perkins
Superfund & Emergency Management Division
USEPA Region 10

GERALD DODO

Digitally signed by GERALD DODO
Date: 2021.12.13 15:21:46 -08'00'

I have authorized release of this data package. Attached you will find the Polyaromatic Hydrocarbon (PAH) analysis results for the above referenced project. For further information regarding the attached data, contact Dana Walker at 360-871-8704.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Drive East
Port Orchard, Washington 98366

**QUALITY ASSURANCE MEMORANDUM
FOR ORGANIC CHEMICAL ANALYSES**

December 9, 2021

DANA WALKER Digitally signed by DANA WALKER

From: Dana Walker Date: 2021.12.09 12:32:23 -08'00'
Laboratory Services & Applied Sciences Division, US EPA Region 10 Laboratory

To: Brandon Perkins
RE: KITSAP RIFLE & REVOLVER
Project Code: SFP-174C
Account Code: 2022T10P000FD210ZZLA00

PAH Sediment

21464450	21464451	21464452	21464453	21464454	21464455
21464456	21464457	21464458			

PAH-SIM Water

21464459	21464461	21464463	21464465	21464467	21464469
21464471					

The following describes the quality assurance review of the data for the analysis parameters and samples listed above. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

1. Data Qualifications

The US EPA Region 10 Laboratory has been accredited by A2LA and has Certificate Number 5027.01. For those tests for which the Laboratory has been accredited by A2LA, results in this report comply with ISO IEC 17025:2017 and the 2009 TNI Environmental Testing Laboratory Standard.

Field information was provided to the laboratory from other sources, such as Chain of Custody records.

The data and associated documents were reviewed against the quality control criteria outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The following areas were reviewed against these quality control measures:

- Sample Transport and Receipt
- Sample Holding Times
- Sample Preparation
- Initial Calibration/Continuing Calibration Verification
- Laboratory Control Samples
- Blank Analysis
- Surrogate Spikes
- Duplicate Analysis

Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Internal Standard Performance
Reference Materials
Compound Quantitation
Analyte Identification

2. Areas Not Meeting Laboratory/QAPP Criteria

None.

3. Data Qualifiers

Data for all samples and analytes were assessed for compliance with each of the requirements described in Section 1. Data qualifiers were assigned, as necessary, to alert the user to instances where data did not meet all requirements. In cases where more than one QC failure occurred, the most restrictive data qualifier has been applied to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier considering the project's data quality objectives. Should questions arise regarding the data, contact Dana Walker at the Region 10 Laboratory, phone number (360) 871-8704.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; however, the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte cannot be determined from the data due to severe quality control problems. The data are rejected and considered unusable. <u>No value is reported with this qualification.</u>
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. <u>No value is reported with this qualification.</u>



US EPA Region 10 Laboratory

Multi-Analyte Final Report



Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Sample : 21464450

Information : KRRC-SE01

Matrix : Sediment

Collected : 11/12/2021 6:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	52	ug/kg	U	11/22/21	1
83329	Acenaphthene	52	ug/kg	U	11/22/21	1
208968	Acenaphthylene	52	ug/kg	U	11/22/21	1
120127	Anthracene	52	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	52	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	52	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	52	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	52	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	52	ug/kg	U	11/22/21	1
218019	Chrysene	52	ug/kg	U	11/22/21	1
53703	Dibenz[a,h]anthracene	52	ug/kg	U	11/22/21	1
132649	Dibenzofuran	52	ug/kg	U	11/22/21	1
206440	Fluoranthene	52	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	52	ug/kg	U	11/22/21	1
91203	Naphthalene	52	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	52	ug/kg	U	11/22/21	1
85018	Phenanthrene	52	ug/kg	U	11/22/21	1
129000	Pyrene	52	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	91	%Rec		11/22/21	1
1719068	Anthracene-D10	94	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	109	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	103	%Rec		11/22/21	1

Sample : 21464451

Information : KRRC-SE02

Matrix : Sediment

Collected : 11/12/2021 10:30:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	110	ug/kg	U	11/22/21	1
83329	Acenaphthene	110	ug/kg	U	11/22/21	1
208968	Acenaphthylene	110	ug/kg	U	11/22/21	1
120127	Anthracene	110	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	110	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	110	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	110	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	110	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	110	ug/kg	U	11/22/21	1
218019	Chrysene	110	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	110	ug/kg	U	11/22/21	1
132649	Dibenzofuran	110	ug/kg	U	11/22/21	1
206440	Fluoranthene	110	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	110	ug/kg	U	11/22/21	1
91203	Naphthalene	110	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	110	ug/kg	U	11/22/21	1
85018	Phenanthrene	110	ug/kg	U	11/22/21	1
129000	Pyrene	110	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	86	%Rec		11/22/21	1
1719068	Anthracene-D10	89	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	85	%Rec		11/22/21	1
1718521	D10-Pyrene	95	%Rec		11/22/21	1

Sample : 21464452

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:35:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	56	ug/kg	U	11/22/21	1
83329	Acenaphthene	56	ug/kg	U	11/22/21	1
208968	Acenaphthylene	56	ug/kg	U	11/22/21	1
120127	Anthracene	56	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	56	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	56	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	56	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	56	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	56	ug/kg	U	11/22/21	1
218019	Chrysene	56	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	56	ug/kg	U	11/22/21	1
132649	Dibenzofuran	56	ug/kg	U	11/22/21	1
206440	Fluoranthene	56	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	56	ug/kg	U	11/22/21	1
91203	Naphthalene	56	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	56	ug/kg	U	11/22/21	1
85018	Phenanthrene	56	ug/kg	U	11/22/21	1
129000	Pyrene	56	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	87	%Rec		11/22/21	1
1719068	Anthracene-D10	92	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	102	%Rec		11/22/21	1

Sample : 21464453

Information : KRRC-SE04

Matrix : Sediment

Collected : 11/12/2021 8:04:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	32	ug/kg	U	11/22/21	1
83329	Acenaphthene	32	ug/kg	U	11/22/21	1
208968	Acenaphthylene	32	ug/kg	U	11/22/21	1
120127	Anthracene	32	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	32	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	32	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	32	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	32	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	32	ug/kg	U	11/22/21	1
218019	Chrysene	32	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	32	ug/kg	U	11/22/21	1
132649	Dibenzofuran	32	ug/kg	U	11/22/21	1
206440	Fluoranthene	32	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	32	ug/kg	U	11/22/21	1
91203	Naphthalene	32	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	32	ug/kg	U	11/22/21	1
85018	Phenanthrene	32	ug/kg	U	11/22/21	1
129000	Pyrene	32	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	79	%Rec		11/22/21	1
1719068	Anthracene-D10	91	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	82	%Rec		11/22/21	1
1718521	D10-Pyrene	99	%Rec		11/22/21	1

Sample : 21464454

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	88	ug/kg	U	11/22/21	1
83329	Acenaphthene	88	ug/kg	U	11/22/21	1
208968	Acenaphthylene	88	ug/kg	U	11/22/21	1
120127	Anthracene	88	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	88	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	88	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	88	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	88	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	88	ug/kg	U	11/22/21	1
218019	Chrysene	88	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	88	ug/kg	U	11/22/21	1
132649	Dibenzofuran	88	ug/kg	U	11/22/21	1
206440	Fluoranthene	88	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	88	ug/kg	U	11/22/21	1
91203	Naphthalene	88	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	88	ug/kg	U	11/22/21	1
85018	Phenanthrene	88	ug/kg	U	11/22/21	1
129000	Pyrene	88	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	85	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	88	%Rec		11/22/21	1
1718521	D10-Pyrene	100	%Rec		11/22/21	1

Sample : 21464455

Information : KRRC-SE06

Matrix : Sediment

Collected : 11/12/2021 10:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	68	ug/kg	U	11/22/21	1
83329	Acenaphthene	68	ug/kg	U	11/22/21	1
208968	Acenaphthylene	68	ug/kg	U	11/22/21	1
120127	Anthracene	68	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	68	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	68	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	68	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	68	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	68	ug/kg	U	11/22/21	1
218019	Chrysene	68	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	68	ug/kg	U	11/22/21	1
132649	Dibenzofuran	68	ug/kg	U	11/22/21	1
206440	Fluoranthene	68	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	68	ug/kg	U	11/22/21	1
91203	Naphthalene	68	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	68	ug/kg	U	11/22/21	1
85018	Phenanthrene	68	ug/kg	U	11/22/21	1
129000	Pyrene	68	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	87	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	84	%Rec		11/22/21	1
1718521	D10-Pyrene	98	%Rec		11/22/21	1

Sample # 21464456

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	43	ug/kg	U	11/22/21	1
83329	Acenaphthene	43	ug/kg	U	11/22/21	1
208968	Acenaphthylene	43	ug/kg	U	11/22/21	1
120127	Anthracene	43	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	43	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	43	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	43	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	43	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	43	ug/kg	U	11/22/21	1
218019	Chrysene	43	ug/kg	U	11/22/21	1
53703	Dibenz[a,h]anthracene	43	ug/kg	U	11/22/21	1
132649	Dibenzofuran	43	ug/kg	U	11/22/21	1
206440	Fluoranthene	43	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	43	ug/kg	U	11/22/21	1
91203	Naphthalene	43	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	43	ug/kg	U	11/22/21	1
85018	Phenanthrene	43	ug/kg	U	11/22/21	1
129000	Pyrene	43	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	94	%Rec		11/22/21	1
1719068	Anthracene-D10	94	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	109	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	89	%Rec		11/22/21	1
1718521	D10-Pyrene	105	%Rec		11/22/21	1

Sample : 21464457

Information : KRRC-SE02-1

Matrix : Sediment

Collected : 11/12/2021 10:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	210	ug/kg	U	11/22/21	1
83329	Acenaphthene	210	ug/kg	U	11/22/21	1
208968	Acenaphthylene	210	ug/kg	U	11/22/21	1
120127	Anthracene	210	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	210	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	210	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	210	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	210	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	210	ug/kg	U	11/22/21	1
218019	Chrysene	210	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	210	ug/kg	U	11/22/21	1
132649	Dibenzofuran	210	ug/kg	U	11/22/21	1
206440	Fluoranthene	210	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	210	ug/kg	U	11/22/21	1
91203	Naphthalene	210	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	210	ug/kg	U	11/22/21	1
85018	Phenanthrene	210	ug/kg	U	11/22/21	1
129000	Pyrene	210	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	91	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	106	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	86	%Rec		11/22/21	1
1718521	D10-Pyrene	101	%Rec		11/22/21	1

Sample : 21464458

Information : KRRC-SE06-1

Matrix : Sediment

Collected : 11/12/2021 11:12:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	150	ug/kg	U	11/22/21	1
83329	Acenaphthene	150	ug/kg	U	11/22/21	1
208968	Acenaphthylene	150	ug/kg	U	11/22/21	1
120127	Anthracene	150	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	150	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	150	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	150	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	150	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	150	ug/kg	U	11/22/21	1
218019	Chrysene	150	ug/kg	U	11/22/21	1
53703	Dibenz[a,h]anthracene	150	ug/kg	U	11/22/21	1
132649	Dibenzofuran	150	ug/kg	U	11/22/21	1
206440	Fluoranthene	150	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	150	ug/kg	U	11/22/21	1
91203	Naphthalene	150	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	150	ug/kg	U	11/22/21	1
85018	Phenanthrene	150	ug/kg	U	11/22/21	1
129000	Pyrene	150	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	92	%Rec		11/22/21	1
1719068	Anthracene-D10	98	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	110	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	102	%Rec		11/22/21	1

Sample : 21464459

Information : KRRC-SW01

Matrix : Water

Collected : 11/12/2021 6:40:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenz[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	89	%Rec		11/17/21	1
1719068	Anthracene-D10	96	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	97	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	76	%Rec		11/17/21	1
1718521	D10-Pyrene	88	%Rec		11/17/21	1

Sample : 21464461

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:35:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		11/17/21	1
1719068	Anthracene-D10	99	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	96	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	86	%Rec		11/17/21	1
1718521	D10-Pyrene	91	%Rec		11/17/21	1

Sample : 21464463

Information : KRRC-SW04

Matrix : Water

Collected : 11/12/2021 8:04:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenz[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	71	%Rec		11/17/21	1
1719068	Anthracene-D10	78	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	86	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	62	%Rec		11/17/21	1
1718521	D10-Pyrene	80	%Rec		11/17/21	1

Sample : 21464465

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenz[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		11/17/21	1
1719068	Anthracene-D10	85	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	94	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	88	%Rec		11/17/21	1
1718521	D10-Pyrene	84	%Rec		11/17/21	1

Sample : 21464467

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:40:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	83	%Rec		11/17/21	1
1719068	Anthracene-D10	97	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	96	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	68	%Rec		11/17/21	1
1718521	D10-Pyrene	90	%Rec		11/17/21	1

Sample : 21464469

Information : KRRC-SW02-1

Matrix : Water

Collected : 11/12/2021 10:40:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenz[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	83	%Rec		11/17/21	1
1719068	Anthracene-D10	98	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	92	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	69	%Rec		11/17/21	1
1718521	D10-Pyrene	83	%Rec		11/17/21	1

Sample : 21464471

Information : KRRC-SW06-1

Matrix : Water

Collected : 11/12/2021 11:12:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenz[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	85	%Rec		11/17/21	1
1719068	Anthracene-D10	102	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	98	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	70	%Rec		11/17/21	1
1718521	D10-Pyrene	89	%Rec		11/17/21	1

Sample : 21464454 Matrix Spike

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	85	%Rec		11/22/21	1
83329	Acenaphthene	84	%Rec		11/22/21	1
208968	Acenaphthylene	84	%Rec		11/22/21	1
120127	Anthracene	89	%Rec		11/22/21	1
56553	Benzo(a)anthracene	92	%Rec		11/22/21	1
50328	Benzo(a)pyrene	99	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	102	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	98	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	92	%Rec		11/22/21	1
218019	Chrysene	84	%Rec		11/22/21	1
53703	Dibenzo[a,h]anthracene	102	%Rec		11/22/21	1
132649	Dibenzofuran	84	%Rec		11/22/21	1
206440	Fluoranthene	90	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	100	%Rec		11/22/21	1
91203	Naphthalene	81	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	88	%Rec		11/22/21	1
85018	Phenanthrene	84	%Rec		11/22/21	1
129000	Pyrene	89	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	86	%Rec		11/22/21	1
1719068	Anthracene-D10	89	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	103	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	87	%Rec		11/22/21	1
1718521	D10-Pyrene	94	%Rec		11/22/21	1

Sample : 21464465 Matrix Spike

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	77	%Rec		11/17/21	1
83329	Acenaphthene	69	%Rec		11/17/21	1
208968	Acenaphthylene	84	%Rec		11/17/21	1
120127	Anthracene	78	%Rec		11/17/21	1
56553	Benzo(a)anthracene	112	%Rec		11/17/21	1
50328	Benzo(a)pyrene	86	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	78	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	88	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	89	%Rec		11/17/21	1
218019	Chrysene	86	%Rec		11/17/21	1
53703	Dibenzo[a,h]anthracene	86	%Rec		11/17/21	1
206440	Fluoranthene	103	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	87	%Rec		11/17/21	1
91203	Naphthalene	67	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	72	%Rec		11/17/21	1
85018	Phenanthrene	79	%Rec		11/17/21	1
129000	Pyrene	80	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	88	%Rec		11/17/21	1
1719068	Anthracene-D10	78	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	91	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	76	%Rec		11/17/21	1
1718521	D10-Pyrene	83	%Rec		11/17/21	1

Sample : 21464454 Matrix Spike#2

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	88	%Rec		11/22/21	1
83329	Acenaphthene	87	%Rec		11/22/21	1
208968	Acenaphthylene	89	%Rec		11/22/21	1
120127	Anthracene	91	%Rec		11/22/21	1
56553	Benzo(a)anthracene	96	%Rec		11/22/21	1
50328	Benzo(a)pyrene	100	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	103	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	105	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	83	%Rec		11/22/21	1
218019	Chrysene	88	%Rec		11/22/21	1
53703	Dibenz[a,h]anthracene	107	%Rec		11/22/21	1
132649	Dibenzofuran	86	%Rec		11/22/21	1
206440	Fluoranthene	93	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	106	%Rec		11/22/21	1
91203	Naphthalene	84	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		11/22/21	1
85018	Phenanthrene	86	%Rec		11/22/21	1
129000	Pyrene	94	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	92	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	100	%Rec		11/22/21	1

Sample : 21464465 Matrix Spike#2

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	93	%Rec		11/17/21	1
83329	Acenaphthene	88	%Rec		11/17/21	1
208968	Acenaphthylene	105	%Rec		11/17/21	1
120127	Anthracene	87	%Rec		11/17/21	1
56553	Benzo(a)anthracene	117	%Rec		11/17/21	1
50328	Benzo(a)pyrene	89	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	82	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	91	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	92	%Rec		11/17/21	1
218019	Chrysene	89	%Rec		11/17/21	1
53703	Dibenz[a,h]anthracene	90	%Rec		11/17/21	1
206440	Fluoranthene	108	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	91	%Rec		11/17/21	1
91203	Naphthalene	87	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	95	%Rec		11/17/21	1
85018	Phenanthrene	88	%Rec		11/17/21	1
129000	Pyrene	83	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	111	%Rec		11/17/21	1
1719068	Anthracene-D10	89	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	96	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	92	%Rec		11/17/21	1
1718521	D10-Pyrene	87	%Rec		11/17/21	1

Sample : 105S112221B1 Blank

Information : Blank

Matrix : Solid

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	25	ug/kg	U	11/22/21	1
83329	Acenaphthene	25	ug/kg	U	11/22/21	1
208968	Acenaphthylene	25	ug/kg	U	11/22/21	1
120127	Anthracene	25	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	25	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	25	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	25	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	25	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	25	ug/kg	U	11/22/21	1
218019	Chrysene	25	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	25	ug/kg	U	11/22/21	1
132649	Dibenzofuran	25	ug/kg	U	11/22/21	1
206440	Fluoranthene	25	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	25	ug/kg	U	11/22/21	1
91203	Naphthalene	25	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	25	ug/kg	U	11/22/21	1
85018	Phenanthrene	25	ug/kg	U	11/22/21	1
129000	Pyrene	25	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	88	%Rec		11/22/21	1
1719068	Anthracene-D10	94	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	101	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	101	%Rec		11/22/21	1

Sample : 105W111721B1 Blank

Information : Blank

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	104	%Rec		11/17/21	1
1719068	Anthracene-D10	100	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	103	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	97	%Rec		11/17/21	1
1718521	D10-Pyrene	97	%Rec		11/17/21	1

Sample : 105S112221L1 Lab Control Std

Information : Lab Control Standard

Matrix : Solid

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	91	%Rec		11/22/21	1
83329	Acenaphthene	88	%Rec		11/22/21	1
208968	Acenaphthylene	90	%Rec		11/22/21	1
120127	Anthracene	93	%Rec		11/22/21	1
56553	Benzo(a)anthracene	96	%Rec		11/22/21	1
50328	Benzo(a)pyrene	102	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	93	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	100	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	94	%Rec		11/22/21	1
218019	Chrysene	87	%Rec		11/22/21	1
53703	Dibenzo[a,h]anthracene	102	%Rec		11/22/21	1
132649	Dibenzofuran	89	%Rec		11/22/21	1
206440	Fluoranthene	97	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	99	%Rec		11/22/21	1
91203	Naphthalene	87	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	89	%Rec		11/22/21	1
85018	Phenanthrene	88	%Rec		11/22/21	1
129000	Pyrene	94	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	94	%Rec		11/22/21	1
1719068	Anthracene-D10	96	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	106	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	95	%Rec		11/22/21	1
1718521	D10-Pyrene	101	%Rec		11/22/21	1

Sample : 105W111721L1 Lab Control Std

Information : Lab Control Standard

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	95	%Rec		11/17/21	1
83329	Acenaphthene	94	%Rec		11/17/21	1
208968	Acenaphthylene	101	%Rec		11/17/21	1
120127	Anthracene	99	%Rec		11/17/21	1
56553	Benzo(a)anthracene	119	%Rec		11/17/21	1
50328	Benzo(a)pyrene	98	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	87	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	98	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	95	%Rec		11/17/21	1
218019	Chrysene	92	%Rec		11/17/21	1
53703	Dibenzo[a,h]anthracene	92	%Rec		11/17/21	1
206440	Fluoranthene	108	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	94	%Rec		11/17/21	1
91203	Naphthalene	90	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	97	%Rec		11/17/21	1
85018	Phenanthrene	90	%Rec		11/17/21	1
129000	Pyrene	92	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		11/17/21	1
1719068	Anthracene-D10	99	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	106	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	96	%Rec		11/17/21	1
1718521	D10-Pyrene	95	%Rec		11/17/21	1

Sample : 105S112221L2 Lab Control Std#2

Information : Lab Control Standard Dup.

Matrix : Solid

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	92	%Rec		11/22/21	1
83329	Acenaphthene	90	%Rec		11/22/21	1
208968	Acenaphthylene	91	%Rec		11/22/21	1
120127	Anthracene	95	%Rec		11/22/21	1
56553	Benzo(a)anthracene	96	%Rec		11/22/21	1
50328	Benzo(a)pyrene	105	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	97	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	95	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	102	%Rec		11/22/21	1
218019	Chrysene	90	%Rec		11/22/21	1
53703	Dibenzo[a,h]anthracene	103	%Rec		11/22/21	1
132649	Dibenzofuran	90	%Rec		11/22/21	1
206440	Fluoranthene	98	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	101	%Rec		11/22/21	1
91203	Naphthalene	88	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	90	%Rec		11/22/21	1
85018	Phenanthrene	89	%Rec		11/22/21	1
129000	Pyrene	94	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	94	%Rec		11/22/21	1
1719068	Anthracene-D10	96	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	108	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	96	%Rec		11/22/21	1
1718521	D10-Pyrene	99	%Rec		11/22/21	1

Sample : 105W111721L2 Lab Control Std#2

Information : Lab Control Standard Dup.

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	98	%Rec		11/17/21	1
83329	Acenaphthene	96	%Rec		11/17/21	1
208968	Acenaphthylene	105	%Rec		11/17/21	1
120127	Anthracene	103	%Rec		11/17/21	1
56553	Benzo(a)anthracene	123	%Rec		11/17/21	1
50328	Benzo(a)pyrene	100	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	90	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	100	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	97	%Rec		11/17/21	1
218019	Chrysene	95	%Rec		11/17/21	1
53703	Dibenzo[a,h]anthracene	95	%Rec		11/17/21	1
206440	Fluoranthene	112	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	97	%Rec		11/17/21	1
91203	Naphthalene	93	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	100	%Rec		11/17/21	1
85018	Phenanthrene	93	%Rec		11/17/21	1
129000	Pyrene	96	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	110	%Rec		11/17/21	1
1719068	Anthracene-D10	103	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	109	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	99	%Rec		11/17/21	1
1718521	D10-Pyrene	98	%Rec		11/17/21	1



Weston Solutions, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134
WestonSolutions.com

March 17, 2022

MEMORANDUM

To: Stephen Nguyen, Superfund Technical Assessment and Response Team (START)-V
Project Team Leader, Weston Solutions, Inc. (WESTON), Seattle, Washington

From: Mark Woodke, START-V Project Chemist, WESTON, *MW*
Seattle, Washington

Re: MEL Inorganic Data Summary Check, SFP-174C
Kitsap Rifle and Revolver Club Site Reassessment
Bremerton, Kitsap County, Washington
Contract Number: 68HE0720D0005
Task Order, Subtask Number: 68HE0720F0160-008

The data summary check of nine sediment samples and 14 water samples collected from the above referenced site has been completed. The samples were analyzed for total and/or dissolved metals by the U.S. Environmental Protection Agency (EPA) Region 10 Laboratory in Port Orchard, WA, following EPA Method 6010D (soil) and EPA Methods 200.7 and 200.8 (water). Results for Hardness as CaCO₃ by calculation following Standard Method 2340B were provided for the water samples as noted below. All sample analyses were evaluated following EPA's Stage 4 Data Validation Electronic Process (S4VM).

The samples were numbered:

Metals in Sediments

21464450	21464451	21464452	21464453	21464454	21464455
21464456	21464457	21464458			

Total Metals & Hardness in Water

21464459	21464461	21464463	21464465	21464467	21464469
21464471					

Dissolved Metals in Filtered Waters

21464460	21464462	21464464	21464466	21464468	21464470
21464472					

No discrepancies were noted. Note: there were no estimated positive results in this data package, therefore bias qualifiers for estimated results were not required.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Drive East
Port Orchard, Washington 98366

**QUALITY ASSURANCE MEMORANDUM
FOR INORGANIC CHEMICAL ANALYSES**

January 5, 2022

**THERESA
MCBRIDE**

Digitally signed by
THERESA MCBRIDE
Date: 2022.01.05
16:39:31 -08'00'

From: Theresa McBride
Laboratory Services & Applied Sciences Division, US EPA Region 10 Laboratory

To: Brandon Perkins
RE: Kitsap Rifle & Revolver
Project Code: SFP-174C
Account Code: 2022T10P000FD210ZZLA00

Metals in Sediments

21464450	21464451	21464452	21464453	21464454	21464455
21464456	21464457	21464458			

Total Metals & Hardness in Water

21464459	21464461	21464463	21464465	21464467	21464469
21464471					

Dissolved Metals in Filtered Waters

21464460	21464462	21464464	21464466	21464468	21464470
21464472					

The following describes the quality assurance review of the data for the analysis parameters and samples listed above. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

1. Data Qualifications

The US EPA Region 10 Laboratory has been accredited by A2LA and has Certificate Number 5027.01. For those tests for which the Laboratory has been accredited by A2LA, results in this report comply with ISO IEC 17025:2017 and the 2009 TNI Environmental Testing Laboratory Standard.

Field information was provided to the laboratory from other sources, such as Chain of Custody records.

The data and associated documents were reviewed against the quality control criteria outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The following areas were reviewed against these quality control measures:

Sample Transport and Receipt
Sample Holding Times
Sample Preparation
Initial Calibration/Continuing Calibration Verification
Laboratory Control Samples
Blank Analysis
Duplicate Analysis
Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Internal Standard Performance Interferences

2. QC Elements Not Meeting Laboratory/QAPP Criteria

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

In sediments, MS/MSD recoveries were low (43% and 43%) for antimony. All antimony results for sediments are qualified "J", estimated, on this basis.

Note: Copper in dissolved sample 21464472 was higher than in the corresponding total sample 21464471, although both results are below 1 ug/L. The digested portions were analyzed again for confirmation, with similar results.

3. Data Qualifiers

Data for all samples and analytes were assessed for compliance with each of the requirements described in Section 1. Data qualifiers were assigned, as necessary, to alert the user to instances where data did not meet all requirements. In cases where more than one QC failure occurred, the most restrictive data qualifier has been applied to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier considering the project's data quality objectives. Should questions arise regarding the data, contact Katie Adams at the Region 10 Laboratory, phone number (360) 871-8748.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; however, the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte cannot be determined from the data due to severe quality control problems. The data are rejected and considered unusable. <u>No value is reported with this qualification.</u>
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. <u>No value is reported with this qualification.</u> †

† NA is most often applied to spike results where the recovery cannot be determined accurately due to the high native sample concentration.



US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Parameter(s): Hardness

Analyte: *90080 - Hardness as CaCO₃

Weight Basis : N/A

Prep Method(s): 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analytical Method: SM2340B - Hardness by Calculation, Standard Methods

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464459 sam	KRRC-SW01	Water	5.58	mg/L		12/6/21	2
21464461 sam	KRRC-SW03	Water	13.3	mg/L		12/6/21	2
21464463 sam	KRRC-SW04	Water	16.7	mg/L		12/6/21	2
21464465 sam	KRRC-SW05	Water	17.9	mg/L		12/6/21	2
21464467 sam	KRRC-SW03	Water	12.8	mg/L		12/6/21	2
21464469 sam	KRRC-SW02-1	Water	7.47	mg/L		12/6/21	2
21464471 sam	KRRC-SW06-1	Water	3.17	mg/L		12/6/21	2
21464465 du	KRRC-SW05	Water	17.6	mg/L		12/6/21	2
IW112221ABL blk	Blank	Liquid	0.30	mg/L	U	12/6/21	2

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464465 ms	KRRC-SW05	Water	96	%Rec		12/6/21	2
21464465 msd	KRRC-SW05	Water	108	%Rec		12/6/21	2
IW112221AL1 lcs	Lab Control Standard	Liquid	101	%Rec		12/6/21	2



US EPA Region 10 Laboratory

Multi-Analyte Final Report



Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Sample : 21464450

Information : KRRC-SE01

Matrix : Sediment

Collected : 11/12/2021 6:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	13400	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.8	mg/Kg		12/14/21	1
7440393	Barium	68.3	mg/Kg		12/14/21	1
7440417	Beryllium	0.26	mg/Kg		12/14/21	1
7440439	Cadmium	0.22	mg/Kg		12/14/21	1
7440702	Calcium	4160	mg/Kg		12/14/21	1
7440473	Chromium	27.0	mg/Kg		12/14/21	1
7440484	Cobalt	7.92	mg/Kg		12/14/21	1
7440508	Copper	22.6	mg/Kg		12/14/21	1
7439896	Iron	14600	mg/Kg		12/14/21	1
7439921	Lead	68.2	mg/Kg		12/14/21	1
7439954	Magnesium	4070	mg/Kg		12/14/21	1
7439965	Manganese	380	mg/Kg		12/14/21	1
7440020	Nickel	35.0	mg/Kg		12/14/21	1
7440097	Potassium	320	mg/Kg		12/14/21	1
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	1.0	mg/Kg	U	12/14/21	1
7440235	Sodium	117	mg/Kg		12/14/21	1
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	43.0	mg/Kg		12/14/21	1
7440666	Zinc	53.8	mg/Kg		12/14/21	1

Sample : 21464451

Information : KRRC-SE02

Matrix : Sediment

Collected : 11/12/2021 10:30:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10700	mg/Kg		12/14/21	5
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	3.9	mg/Kg		12/14/21	1
7440393	Barium	43.7	mg/Kg		12/14/21	5
7440417	Beryllium	0.944	mg/Kg		12/14/21	1
7440439	Cadmium	0.99	mg/Kg	U	12/14/21	5
7440702	Calcium	8570	mg/Kg		12/14/21	5
7440473	Chromium	11.5	mg/Kg		12/14/21	1
7440484	Cobalt	2.4	mg/Kg		12/14/21	1
7440508	Copper	10.9	mg/Kg		12/14/21	1
7439896	Iron	3780	mg/Kg		12/14/21	5
7439921	Lead	106	mg/Kg		12/14/21	1
7439954	Magnesium	1560	mg/Kg		12/14/21	5
7439965	Manganese	129	mg/Kg		12/14/21	1
7440020	Nickel	16.5	mg/Kg		12/14/21	5
7440097	Potassium	350	mg/Kg	U	12/14/21	5
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	0.99	mg/Kg	U	12/14/21	1
7440235	Sodium	71	mg/Kg		12/14/21	5
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	14.3	mg/Kg		12/14/21	1
7440666	Zinc	22.7	mg/Kg		12/14/21	5

Sample : 21464452

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:35:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	12600	mg/Kg		12/14/21	1
7440360	Antimony	1.8	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.3	mg/Kg	U	12/14/21	1
7440393	Barium	37.0	mg/Kg		12/14/21	1
7440417	Beryllium	0.24	mg/Kg		12/14/21	1
7440439	Cadmium	0.19	mg/Kg		12/14/21	1
7440702	Calcium	5290	mg/Kg		12/14/21	1
7440473	Chromium	29.4	mg/Kg		12/14/21	1
7440484	Cobalt	7.77	mg/Kg		12/14/21	1
7440508	Copper	21.0	mg/Kg		12/14/21	1
7439896	Iron	15400	mg/Kg		12/14/21	1
7439921	Lead	21.3	mg/Kg		12/14/21	1
7439954	Magnesium	5020	mg/Kg		12/14/21	1
7439965	Manganese	487	mg/Kg		12/14/21	1
7440020	Nickel	28.1	mg/Kg		12/14/21	1
7440097	Potassium	321	mg/Kg		12/14/21	1
7782492	Selenium	4.6	mg/Kg	U	12/14/21	1
7440224	Silver	0.91	mg/Kg	U	12/14/21	1
7440235	Sodium	191	mg/Kg		12/14/21	1
7440280	Thallium	4.6	mg/Kg	U	12/14/21	1
7440622	Vanadium	43.3	mg/Kg		12/14/21	1
7440666	Zinc	33.4	mg/Kg		12/14/21	1

Sample : 21464453

Information : KRRC-SE04

Matrix : Sediment

Collected : 11/12/2021 8:04:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	15800	mg/Kg		12/14/21	5
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.4	mg/Kg	U	12/14/21	1
7440393	Barium	61.3	mg/Kg		12/14/21	1
7440417	Beryllium	0.43	mg/Kg		12/14/21	1
7440439	Cadmium	0.20	mg/Kg	U	12/14/21	1
7440702	Calcium	2910	mg/Kg		12/14/21	5
7440473	Chromium	30.2	mg/Kg		12/14/21	1
7440484	Cobalt	8.80	mg/Kg		12/14/21	1
7440508	Copper	8.17	mg/Kg		12/14/21	1
7439896	Iron	17100	mg/Kg		12/14/21	5
7439921	Lead	2.9	mg/Kg		12/14/21	1
7439954	Magnesium	3410	mg/Kg		12/14/21	5
7439965	Manganese	1500	mg/Kg		12/14/21	1
7440020	Nickel	20.1	mg/Kg		12/14/21	1
7440097	Potassium	340	mg/Kg	U	12/14/21	5
7782492	Selenium	4.9	mg/Kg	U	12/14/21	1
7440224	Silver	0.98	mg/Kg	U	12/14/21	1
7440235	Sodium	67	mg/Kg		12/14/21	5
7440280	Thallium	4.9	mg/Kg	U	12/14/21	1
7440622	Vanadium	55.2	mg/Kg		12/14/21	1
7440666	Zinc	21.9	mg/Kg		12/14/21	1

Sample : 21464454

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10500	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	45.5	mg/Kg		12/14/21	1
7440417	Beryllium	0.23	mg/Kg		12/14/21	1
7440439	Cadmium	0.21	mg/Kg		12/14/21	1
7440702	Calcium	3750	mg/Kg		12/14/21	1
7440473	Chromium	22.8	mg/Kg		12/14/21	1
7440484	Cobalt	4.40	mg/Kg		12/14/21	1
7440508	Copper	10.7	mg/Kg		12/14/21	1
7439896	Iron	9860	mg/Kg		12/14/21	1
7439921	Lead	37.9	mg/Kg		12/14/21	1
7439954	Magnesium	2900	mg/Kg		12/14/21	1
7439965	Manganese	200	mg/Kg		12/14/21	1
7440020	Nickel	21.5	mg/Kg		12/14/21	1
7440097	Potassium	170	mg/Kg		12/14/21	1
7782492	Selenium	4.9	mg/Kg	U	12/14/21	1
7440224	Silver	0.98	mg/Kg	U	12/14/21	1
7440235	Sodium	76.4	mg/Kg		12/14/21	1
7440280	Thallium	4.9	mg/Kg	U	12/14/21	1
7440622	Vanadium	34.4	mg/Kg		12/14/21	1
7440666	Zinc	32.1	mg/Kg		12/14/21	1

Sample : 21464455

Information : KRRC-SE06

Matrix : Sediment

Collected : 11/12/2021 10:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	4860	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	75.9	mg/Kg		12/14/21	1
7440417	Beryllium	0.30	mg/Kg		12/14/21	1
7440439	Cadmium	0.41	mg/Kg		12/14/21	1
7440702	Calcium	10400	mg/Kg		12/14/21	1
7440473	Chromium	8.19	mg/Kg		12/14/21	1
7440484	Cobalt	2.4	mg/Kg		12/14/21	1
7440508	Copper	10.6	mg/Kg		12/14/21	1
7439896	Iron	3340	mg/Kg		12/14/21	1
7439921	Lead	47.2	mg/Kg		12/14/21	1
7439954	Magnesium	1410	mg/Kg		12/14/21	1
7439965	Manganese	134	mg/Kg		12/14/21	1
7440020	Nickel	12.1	mg/Kg		12/14/21	1
7440097	Potassium	220	mg/Kg		12/14/21	1
7782492	Selenium	4.9	mg/Kg	U	12/14/21	1
7440224	Silver	0.99	mg/Kg	U	12/14/21	1
7440235	Sodium	64.2	mg/Kg		12/14/21	1
7440280	Thallium	4.9	mg/Kg	U	12/14/21	1
7440622	Vanadium	16.3	mg/Kg		12/14/21	1
7440666	Zinc	31.0	mg/Kg		12/14/21	1

Sample : 21464456

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	18000	mg/Kg		12/14/21	5
7440360	Antimony	1.9	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.8	mg/Kg		12/14/21	1
7440393	Barium	63.8	mg/Kg		12/14/21	1
7440417	Beryllium	0.45	mg/Kg		12/14/21	1
7440439	Cadmium	0.25	mg/Kg		12/14/21	1
7440702	Calcium	4520	mg/Kg		12/14/21	5
7440473	Chromium	26.2	mg/Kg		12/14/21	1
7440484	Cobalt	8.48	mg/Kg		12/14/21	1
7440508	Copper	18.6	mg/Kg		12/14/21	1
7439896	Iron	12100	mg/Kg		12/14/21	5
7439921	Lead	60.1	mg/Kg		12/14/21	1
7439954	Magnesium	2760	mg/Kg		12/14/21	5
7439965	Manganese	1120	mg/Kg		12/14/21	1
7440020	Nickel	21.6	mg/Kg		12/14/21	1
7440097	Potassium	330	mg/Kg	U	12/14/21	5
7782492	Selenium	4.7	mg/Kg	U	12/14/21	1
7440224	Silver	0.95	mg/Kg	U	12/14/21	1
7440235	Sodium	130	mg/Kg		12/14/21	5
7440280	Thallium	4.7	mg/Kg	U	12/14/21	1
7440622	Vanadium	37.6	mg/Kg		12/14/21	1
7440666	Zinc	41.7	mg/Kg		12/14/21	1

Sample : 21464457

Information : KRRC-SE02-1

Matrix : Sediment

Collected : 11/12/2021 10:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	2680	mg/Kg		12/14/21	1
7440360	Antimony	1.9	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.4	mg/Kg	U	12/14/21	1
7440393	Barium	91.4	mg/Kg		12/14/21	1
7440417	Beryllium	0.097	mg/Kg	U	12/14/21	1
7440439	Cadmium	1.27	mg/Kg		12/14/21	1
7440702	Calcium	14300	mg/Kg		12/14/21	1
7440473	Chromium	4.40	mg/Kg		12/14/21	1
7440484	Cobalt	1.6	mg/Kg		12/14/21	1
7440508	Copper	10.4	mg/Kg		12/14/21	1
7439896	Iron	2640	mg/Kg		12/14/21	1
7439921	Lead	25.1	mg/Kg		12/14/21	1
7439954	Magnesium	1670	mg/Kg		12/14/21	1
7439965	Manganese	195	mg/Kg		12/14/21	1
7440020	Nickel	5.92	mg/Kg		12/14/21	1
7440097	Potassium	290	mg/Kg		12/14/21	1
7782492	Selenium	4.8	mg/Kg	U	12/14/21	1
7440224	Silver	0.97	mg/Kg	U	12/14/21	1
7440235	Sodium	81.8	mg/Kg		12/14/21	1
7440280	Thallium	4.8	mg/Kg	U	12/14/21	1
7440622	Vanadium	8.79	mg/Kg		12/14/21	1
7440666	Zinc	107	mg/Kg		12/14/21	1

Sample : 21464458

Information : KRRC-SE06-1

Matrix : Sediment

Collected : 11/12/2021 11:12:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	9660	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	56.8	mg/Kg		12/14/21	1
7440417	Beryllium	0.18	mg/Kg		12/14/21	1
7440439	Cadmium	0.27	mg/Kg		12/14/21	1
7440702	Calcium	4580	mg/Kg		12/14/21	1
7440473	Chromium	27.0	mg/Kg		12/14/21	1
7440484	Cobalt	4.06	mg/Kg		12/14/21	1
7440508	Copper	8.84	mg/Kg		12/14/21	1
7439896	Iron	9950	mg/Kg		12/14/21	1
7439921	Lead	13.9	mg/Kg		12/14/21	1
7439954	Magnesium	14800	mg/Kg		12/14/21	1
7439965	Manganese	163	mg/Kg		12/14/21	1
7440020	Nickel	59.0	mg/Kg		12/14/21	1
7440097	Potassium	330	mg/Kg		12/14/21	1
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	0.99	mg/Kg	U	12/14/21	1
7440235	Sodium	126	mg/Kg		12/14/21	1
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	23.9	mg/Kg		12/14/21	1
7440666	Zinc	16.9	mg/Kg		12/14/21	1

Sample : 21464459

Information : KRRC-SW01

Matrix : Water

Collected : 11/12/2021 6:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	146	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1190	ug/L		12/ 6/21	2
7440508	Copper	1.41	ug/L		12/ 6/21	2
7439896	Iron	33.8	ug/L		12/ 6/21	2
7439921	Lead	0.299	ug/L		12/ 6/21	2
7439954	Magnesium	634	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	7.00	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	3.0	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1880	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	6.7	ug/L		11/23/21	2

Sample : 21464460

Information : KRRC-SW01

Matrix : Filtered

Collected : 11/12/2021 6:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	130	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1200	ug/L		12/ 6/21	2
7440508	Copper	1.42	ug/L		12/ 6/21	2
7439896	Iron	25.1	ug/L		12/ 6/21	2
7439921	Lead	0.272	ug/L		12/ 6/21	2
7439954	Magnesium	612	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.86	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	3.3	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1900	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	9.7	ug/L		11/23/21	2

Sample : 21464461

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:35:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	945	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.21	ug/L		12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3160	ug/L		12/ 6/21	2
7440508	Copper	2.06	ug/L		12/ 6/21	2
7439896	Iron	574	ug/L		12/ 6/21	2
7439921	Lead	3.35	ug/L		12/ 6/21	2
7439954	Magnesium	1300	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	12.1	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	119	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1100	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1880	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	6.9	ug/L		11/23/21	2

Sample : 21464462

Information : KRRC-SW03

Matrix : Filtered

Collected : 11/12/2021 8:35:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	80.9	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	2860	ug/L		12/ 6/21	2
7440508	Copper	0.99	ug/L		12/ 6/21	2
7439896	Iron	42.1	ug/L		12/ 6/21	2
7439921	Lead	0.24	ug/L		12/ 6/21	2
7439954	Magnesium	1140	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.03	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	44.7	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1100	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1840	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464463

Information : KRRC-SW04

Matrix : Water

Collected : 11/12/2021 8:04:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	183	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4010	ug/L		12/ 6/21	2
7440508	Copper	0.82	ug/L		12/ 6/21	2
7439896	Iron	70.5	ug/L		12/ 6/21	2
7439921	Lead	0.510	ug/L		12/ 6/21	2
7439954	Magnesium	1630	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	9.31	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	23.9	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	800	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2100	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464464

Information : KRRC-SW04

Matrix : Filtered

Collected : 11/12/2021 8:04:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	158	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3990	ug/L		12/ 6/21	2
7440508	Copper	0.89	ug/L		12/ 6/21	2
7439896	Iron	58.2	ug/L		12/ 6/21	2
7439921	Lead	0.435	ug/L		12/ 6/21	2
7439954	Magnesium	1640	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	9.27	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	23.7	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	800	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2160	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.5	ug/L		11/23/21	2

Sample : 21464465

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	118	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4510	ug/L		12/ 6/21	2
7440508	Copper	0.49	ug/L		12/ 6/21	2
7439896	Iron	129	ug/L		12/ 6/21	2
7439921	Lead	0.522	ug/L		12/ 6/21	2
7439954	Magnesium	1620	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.48	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	58.2	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2670	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464466

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	88.6	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4410	ug/L		12/ 6/21	2
7440508	Copper	0.62	ug/L		12/ 6/21	2
7439896	Iron	98.9	ug/L		12/ 6/21	2
7439921	Lead	0.365	ug/L		12/ 6/21	2
7439954	Magnesium	1610	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.22	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	50.2	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2660	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464467

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	508	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3070	ug/L		12/ 6/21	2
7440508	Copper	1.69	ug/L		12/ 6/21	2
7439896	Iron	368	ug/L		12/ 6/21	2
7439921	Lead	1.37	ug/L		12/ 6/21	2
7439954	Magnesium	1240	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	9.57	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	69.9	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1100	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1820	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.4	ug/L		11/23/21	2

Sample : 21464468

Information : KRRC-SW03

Matrix : Filtered

Collected : 11/12/2021 8:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	97.5	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3010	ug/L		12/ 6/21	2
7440508	Copper	0.92	ug/L		12/ 6/21	2
7439896	Iron	53.8	ug/L		12/ 6/21	2
7439921	Lead	0.25	ug/L		12/ 6/21	2
7439954	Magnesium	1190	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.32	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	47.7	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1000	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1830	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464469

Information : KRRC-SW02-1

Matrix : Water

Collected : 11/12/2021 10:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	91.2	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.22	ug/L		12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1740	ug/L		12/ 6/21	2
7440508	Copper	0.49	ug/L		12/ 6/21	2
7439896	Iron	81.8	ug/L		12/ 6/21	2
7439921	Lead	0.810	ug/L		12/ 6/21	2
7439954	Magnesium	761	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	4.4	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	32.2	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	920	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1200	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.8	ug/L		11/23/21	2

Sample : 21464470

Information : KRRC-SW02-1

Matrix : Filtered

Collected : 11/12/2021 10:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	38	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L		12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1600	ug/L		12/ 6/21	2
7440508	Copper	0.42	ug/L		12/ 6/21	2
7439896	Iron	49.2	ug/L		12/ 6/21	2
7439921	Lead	0.253	ug/L		12/ 6/21	2
7439954	Magnesium	731	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	2.9	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	28.1	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	910	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1190	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	7.3	ug/L		11/23/21	2

Sample : 21464471

Information : KRRC-SW06-1

Matrix : Water

Collected : 11/12/2021 11:12:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	34	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	647	ug/L		12/ 6/21	2
7440508	Copper	0.37	ug/L		12/ 6/21	2
7439896	Iron	23	ug/L		12/ 6/21	2
7439921	Lead	0.099	ug/L		12/ 6/21	2
7439954	Magnesium	376	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	3.5	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	14.9	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	968	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.3	ug/L		11/23/21	2

Sample : 21464472

Information : KRRC-SW06-1

Matrix : Filtered

Collected : 11/12/2021 11:12:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	38	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	779	ug/L		12/ 6/21	2
7440508	Copper	0.83	ug/L		12/ 6/21	2
7439896	Iron	20	ug/L		12/ 6/21	2
7439921	Lead	0.11	ug/L		12/ 6/21	2
7439954	Magnesium	395	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	3.5	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	11.6	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1080	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464454 Sample Duplicate

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10400	mg/Kg		12/14/21	1
7440360	Antimony	1.9	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.4	mg/Kg	U	12/14/21	1
7440393	Barium	44.1	mg/Kg		12/14/21	1
7440417	Beryllium	0.22	mg/Kg		12/14/21	1
7440439	Cadmium	0.20	mg/Kg		12/14/21	1
7440702	Calcium	3880	mg/Kg		12/14/21	1
7440473	Chromium	26.4	mg/Kg		12/14/21	1
7440484	Cobalt	4.29	mg/Kg		12/14/21	1
7440508	Copper	10.4	mg/Kg		12/14/21	1
7439896	Iron	9630	mg/Kg		12/14/21	1
7439921	Lead	37.6	mg/Kg		12/14/21	1
7439954	Magnesium	2860	mg/Kg		12/14/21	1
7439965	Manganese	195	mg/Kg		12/14/21	1
7440020	Nickel	21.1	mg/Kg		12/14/21	1
7440097	Potassium	160	mg/Kg		12/14/21	1
7782492	Selenium	4.8	mg/Kg	U	12/14/21	1
7440224	Silver	0.96	mg/Kg	U	12/14/21	1
7440235	Sodium	72.2	mg/Kg		12/14/21	1
7440280	Thallium	4.8	mg/Kg	U	12/14/21	1
7440622	Vanadium	34.0	mg/Kg		12/14/21	1
7440666	Zinc	31.0	mg/Kg		12/14/21	1

Sample : 21464465 Sample Duplicate

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	118	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4380	ug/L		12/ 6/21	2
7440508	Copper	0.50	ug/L		12/ 6/21	2
7439896	Iron	126	ug/L		12/ 6/21	2
7439921	Lead	0.522	ug/L		12/ 6/21	2
7439954	Magnesium	1630	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.56	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	59.1	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2670	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464466 Sample Duplicate

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	92.2	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4400	ug/L		12/ 6/21	2
7440508	Copper	0.60	ug/L		12/ 6/21	2
7439896	Iron	100	ug/L		12/ 6/21	2
7439921	Lead	0.371	ug/L		12/ 6/21	2
7439954	Magnesium	1670	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.26	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	50.3	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2640	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464454 Matrix Spike

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	12/14/21	1
7440360	Antimony	43	%Rec		12/14/21	1
7440382	Arsenic	101	%Rec		12/14/21	1
7440393	Barium	95	%Rec		12/14/21	1
7440417	Beryllium	96	%Rec		12/14/21	1
7440439	Cadmium	89	%Rec		12/14/21	1
7440702	Calcium	115	%Rec		12/14/21	1
7440473	Chromium	107	%Rec		12/14/21	1
7440484	Cobalt	90	%Rec		12/14/21	1
7440508	Copper	100	%Rec		12/14/21	1
7439896	Iron			NA	12/14/21	1
7439921	Lead	93	%Rec		12/14/21	1
7439954	Magnesium	98	%Rec		12/14/21	1
7439965	Manganese	111	%Rec		12/14/21	1
7440020	Nickel	88	%Rec		12/14/21	1
7440097	Potassium	90	%Rec		12/14/21	1
7782492	Selenium	98	%Rec		12/14/21	1
7440224	Silver	97	%Rec		12/14/21	1
7440235	Sodium	91	%Rec		12/14/21	1
7440280	Thallium	97	%Rec		12/14/21	1
7440622	Vanadium	99	%Rec		12/14/21	1
7440666	Zinc	91	%Rec		12/14/21	1

Sample : 21464465 Matrix Spike

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		12/ 6/21	2
7440360	Antimony	97	%Rec		12/ 6/21	2
7440382	Arsenic	103	%Rec		12/ 6/21	2
7440439	Cadmium	94	%Rec		12/ 6/21	2
7440702	Calcium	87	%Rec		12/ 6/21	2
7440508	Copper	96	%Rec		12/ 6/21	2
7439896	Iron	103	%Rec		12/ 6/21	2
7439921	Lead	101	%Rec		12/ 6/21	2
7439954	Magnesium	101	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	102	%Rec		11/23/21	2
7440417	Beryllium	103	%Rec		11/23/21	2
7440473	Chromium	101	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	101	%Rec		11/23/21	2
7440020	Nickel	99	%Rec		11/23/21	2
7440097	Potassium	104	%Rec		11/23/21	2
7782492	Selenium	104	%Rec		11/23/21	2
7440224	Silver	96	%Rec		11/23/21	2
7440235	Sodium	100	%Rec		11/23/21	2
7440280	Thallium	102	%Rec		11/23/21	2
7440622	Vanadium	104	%Rec		11/23/21	2
7440666	Zinc	101	%Rec		11/23/21	2

Sample : 21464466 Matrix Spike

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	102	%Rec		12/ 6/21	2
7440360	Antimony	98	%Rec		12/ 6/21	2
7440382	Arsenic	102	%Rec		12/ 6/21	2
7440439	Cadmium	97	%Rec		12/ 6/21	2
7440702	Calcium	102	%Rec		12/ 6/21	2
7440508	Copper	97	%Rec		12/ 6/21	2
7439896	Iron	105	%Rec		12/ 6/21	2
7439921	Lead	100	%Rec		12/ 6/21	2
7439954	Magnesium	115	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	104	%Rec		11/23/21	2
7440417	Beryllium	103	%Rec		11/23/21	2
7440473	Chromium	104	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	102	%Rec		11/23/21	2
7440020	Nickel	100	%Rec		11/23/21	2
7440097	Potassium	106	%Rec		11/23/21	2
7782492	Selenium	105	%Rec		11/23/21	2
7440224	Silver	99	%Rec		11/23/21	2
7440235	Sodium	100	%Rec		11/23/21	2
7440280	Thallium	103	%Rec		11/23/21	2
7440622	Vanadium	106	%Rec		11/23/21	2
7440666	Zinc	102	%Rec		11/23/21	2

Sample : 21464454 Matrix Spike#2

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	12/14/21	1
7440360	Antimony	43	%Rec		12/14/21	1
7440382	Arsenic	103	%Rec		12/14/21	1
7440393	Barium	98	%Rec		12/14/21	1
7440417	Beryllium	97	%Rec		12/14/21	1
7440439	Cadmium	90	%Rec		12/14/21	1
7440702	Calcium	119	%Rec		12/14/21	1
7440473	Chromium	103	%Rec		12/14/21	1
7440484	Cobalt	93	%Rec		12/14/21	1
7440508	Copper	102	%Rec		12/14/21	1
7439896	Iron			NA	12/14/21	1
7439921	Lead	96	%Rec		12/14/21	1
7439954	Magnesium	96	%Rec		12/14/21	1
7439965	Manganese	119	%Rec		12/14/21	1
7440020	Nickel	89	%Rec		12/14/21	1
7440097	Potassium	92	%Rec		12/14/21	1
7782492	Selenium	98	%Rec		12/14/21	1
7440224	Silver	98	%Rec		12/14/21	1
7440235	Sodium	92	%Rec		12/14/21	1
7440280	Thallium	98	%Rec		12/14/21	1
7440622	Vanadium	99	%Rec		12/14/21	1
7440666	Zinc	94	%Rec		12/14/21	1

Sample : 21464465 Matrix Spike#2

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	104	%Rec		12/ 6/21	2
7440360	Antimony	99	%Rec		12/ 6/21	2
7440382	Arsenic	102	%Rec		12/ 6/21	2
7440439	Cadmium	96	%Rec		12/ 6/21	2
7440702	Calcium	105	%Rec		12/ 6/21	2
7440508	Copper	99	%Rec		12/ 6/21	2
7439896	Iron	105	%Rec		12/ 6/21	2
7439921	Lead	100	%Rec		12/ 6/21	2
7439954	Magnesium	110	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	104	%Rec		11/23/21	2
7440417	Beryllium	104	%Rec		11/23/21	2
7440473	Chromium	103	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	102	%Rec		11/23/21	2
7440020	Nickel	99	%Rec		11/23/21	2
7440097	Potassium	105	%Rec		11/23/21	2
7782492	Selenium	104	%Rec		11/23/21	2
7440224	Silver	97	%Rec		11/23/21	2
7440235	Sodium	101	%Rec		11/23/21	2
7440280	Thallium	102	%Rec		11/23/21	2
7440622	Vanadium	105	%Rec		11/23/21	2
7440666	Zinc	101	%Rec		11/23/21	2

Sample : 21464466 Matrix Spike#2

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	103	%Rec		12/ 6/21	2
7440360	Antimony	98	%Rec		12/ 6/21	2
7440382	Arsenic	102	%Rec		12/ 6/21	2
7440439	Cadmium	95	%Rec		12/ 6/21	2
7440702	Calcium	110	%Rec		12/ 6/21	2
7440508	Copper	97	%Rec		12/ 6/21	2
7439896	Iron	106	%Rec		12/ 6/21	2
7439921	Lead	101	%Rec		12/ 6/21	2
7439954	Magnesium	117	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	102	%Rec		11/23/21	2
7440417	Beryllium	102	%Rec		11/23/21	2
7440473	Chromium	103	%Rec		11/23/21	2
7440484	Cobalt	93	%Rec		11/23/21	2
7439965	Manganese	101	%Rec		11/23/21	2
7440020	Nickel	98	%Rec		11/23/21	2
7440097	Potassium	105	%Rec		11/23/21	2
7782492	Selenium	103	%Rec		11/23/21	2
7440224	Silver	98	%Rec		11/23/21	2
7440235	Sodium	98	%Rec		11/23/21	2
7440280	Thallium	101	%Rec		11/23/21	2
7440622	Vanadium	106	%Rec		11/23/21	2
7440666	Zinc	100	%Rec		11/23/21	2

Sample : IS121321ABL Blank

Information : Blank

Matrix : Solid

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	mg/Kg	U	12/14/21	1
7440360	Antimony	2.0	mg/Kg	U	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	0.10	mg/Kg	U	12/14/21	1
7440417	Beryllium	0.10	mg/Kg	U	12/14/21	1
7440439	Cadmium	0.20	mg/Kg	U	12/14/21	1
7440702	Calcium	5.0	mg/Kg	U	12/14/21	1
7440473	Chromium	0.50	mg/Kg	U	12/14/21	1
7440484	Cobalt	0.50	mg/Kg	U	12/14/21	1
7440508	Copper	0.50	mg/Kg	U	12/14/21	1
7439896	Iron	5.0	mg/Kg	U	12/14/21	1
7439921	Lead	2.5	mg/Kg	U	12/14/21	1
7439954	Magnesium	5.0	mg/Kg	U	12/14/21	1
7439965	Manganese	0.20	mg/Kg	U	12/14/21	1
7440020	Nickel	0.50	mg/Kg	U	12/14/21	1
7440097	Potassium	70	mg/Kg	U	12/14/21	1
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	1.0	mg/Kg	U	12/14/21	1
7440235	Sodium	10	mg/Kg	U	12/14/21	1
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	0.50	mg/Kg	U	12/14/21	1
7440666	Zinc	2.0	mg/Kg	U	12/14/21	1

Sample : IW112221ABL Blank

Information : Blank

Matrix : Liquid

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	ug/L	U	12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	20	ug/L	U	12/ 6/21	2
7440508	Copper	0.20	ug/L	U	12/ 6/21	2
7439896	Iron	10	ug/L	U	12/ 6/21	2
7439921	Lead	0.050	ug/L	U	12/ 6/21	2
7439954	Magnesium	15	ug/L	U	12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	1.0	ug/L	U	11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	2.0	ug/L	U	11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	100	ug/L	U	11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : IS121321AL1 Lab Control Std

Information : Lab Control Standard

Matrix : Solid

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		12/14/21	1
7440360	Antimony	99	%Rec		12/14/21	1
7440382	Arsenic	99	%Rec		12/14/21	1
7440393	Barium	100	%Rec		12/14/21	1
7440417	Beryllium	99	%Rec		12/14/21	1
7440439	Cadmium	98	%Rec		12/14/21	1
7440702	Calcium	97	%Rec		12/14/21	1
7440473	Chromium	100	%Rec		12/14/21	1
7440484	Cobalt	94	%Rec		12/14/21	1
7440508	Copper	99	%Rec		12/14/21	1
7439896	Iron	98	%Rec		12/14/21	1
7439921	Lead	94	%Rec		12/14/21	1
7439954	Magnesium	101	%Rec		12/14/21	1
7439965	Manganese	100	%Rec		12/14/21	1
7440020	Nickel	96	%Rec		12/14/21	1
7440097	Potassium	99	%Rec		12/14/21	1
7782492	Selenium	98	%Rec		12/14/21	1
7440224	Silver	98	%Rec		12/14/21	1
7440235	Sodium	98	%Rec		12/14/21	1
7440280	Thallium	100	%Rec		12/14/21	1
7440622	Vanadium	100	%Rec		12/14/21	1
7440666	Zinc	98	%Rec		12/14/21	1

Sample : IW112221AL1 Lab Control Std

Information : Lab Control Standard

Matrix : Liquid

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		12/ 6/21	2
7440360	Antimony	98	%Rec		12/ 6/21	2
7440382	Arsenic	99	%Rec		12/ 6/21	2
7440439	Cadmium	97	%Rec		12/ 6/21	2
7440702	Calcium	101	%Rec		12/ 6/21	2
7440508	Copper	97	%Rec		12/ 6/21	2
7439896	Iron	102	%Rec		12/ 6/21	2
7439921	Lead	99	%Rec		12/ 6/21	2
7439954	Magnesium	100	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	102	%Rec		11/23/21	2
7440417	Beryllium	104	%Rec		11/23/21	2
7440473	Chromium	103	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	102	%Rec		11/23/21	2
7440020	Nickel	99	%Rec		11/23/21	2
7440097	Potassium	100	%Rec		11/23/21	2
7782492	Selenium	104	%Rec		11/23/21	2
7440224	Silver	96	%Rec		11/23/21	2
7440235	Sodium	100	%Rec		11/23/21	2
7440280	Thallium	102	%Rec		11/23/21	2
7440622	Vanadium	105	%Rec		11/23/21	2
7440666	Zinc	100	%Rec		11/23/21	2



Weston Solutions, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134
WestonSolutions.com

March 16, 2022

MEMORANDUM

To: Stephen Nguyen, Superfund Technical Assessment and Response Team (START)-V
Project Team Leader, Weston Solutions, Inc. (WESTON), Seattle, Washington

From: Mark Woodke, START-V Project Chemist, WESTON, *MW*
Seattle, Washington

Re: MEL Mercury Data Summary Check, SFP-174C
Kitsap Rifle and Revolver Club Site Reassessment
Bremerton, Kitsap County, Washington
Contract Number: 68HE0720D0005
Task Order, Subtask Number: 68HE0720F0160-008

The data summary check of nine sediment samples and 14 water samples collected from the above referenced site has been completed. The samples were analyzed for total and/or dissolved mercury by the U.S. Environmental Protection Agency (EPA) Region 10 Laboratory in Port Orchard, WA, following EPA Methods 245.1 (water) and 7471B (soil). All sample analyses were evaluated following EPA's Stage 4 Data Validation Electronic Process (S4VM). Note: the release of this data package was authorized by the Region 10 Laboratory QA coordinator in an email.

The samples were numbered:

Mercury in Sediments

21464450	21464451	21464452	21464453	21464454	21464455
21464456	21464457	21464458			

Total Mercury in Water

21464459	21464461	21464463	21464465	21464467	21464469
21464471					

Dissolved Mercury in Filtered Waters

21464460	21464462	21464464	21464466	21464468	21464470
21464472					

No discrepancies were noted. Note: there were no estimated results in this data package, therefore bias qualifiers for estimated results were not required.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Drive East
Port Orchard, Washington 98366

**QUALITY ASSURANCE MEMORANDUM
FOR INORGANIC CHEMICAL ANALYSES**

December 29, 2021

**THERESA
MCBRIDE**

Digitally signed by THERESA
MCBRIDE
Date: 2021.12.29 11:53:57
-08'00'

From: Theresa McBride

Laboratory Services & Applied Sciences Division, US EPA Region 10 Laboratory

To: Brandon Perkins

RE: Kitsap Rifle & Revolver

Project Code: SFP-174C

Account Code: 2022T10P000FD210ZZLA00

Mercury in Sediments

21464450	21464451	21464452	21464453	21464454	21464455
21464456	21464457	21464458			

Total Mercury in Water

21464459	21464461	21464463	21464465	21464467	21464469
21464471					

Dissolved Mercury in Filtered Waters

21464460	21464462	21464464	21464466	21464468	21464470
21464472					

The following describes the quality assurance review of the data for the analysis parameters and samples listed above. The analyses were performed by the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

1. Data Qualifications

The US EPA Region 10 Laboratory has been accredited by A2LA and has Certificate Number 5027.01. For those tests for which the Laboratory has been accredited by A2LA, results in this report comply with ISO IEC 17025:2017 and the 2009 TNI Environmental Testing Laboratory Standard.

Field information was provided to the laboratory from other sources, such as Chain of Custody records.

The data and associated documents were reviewed against the quality control criteria outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). The following areas were reviewed against these quality control measures:

Sample Transport and Receipt

Sample Holding Times

Sample Preparation

Initial Calibration/Continuing Calibration Verification

Laboratory Control Samples

Blank Analysis

Duplicate Analysis

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Reference Materials

2. QC Elements Not Meeting Laboratory/QAPP Criteria

None.

3. Data Qualifiers

Data for all samples and analytes were assessed for compliance with each of the requirements described in Section 1. Data qualifiers were assigned, as necessary, to alert the user to instances where data did not meet all requirements. In cases where more than one QC failure occurred, the most restrictive data qualifier has been applied to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier considering the project's data quality objectives. Should questions arise regarding the data, contact Katie Adams at the Region 10 Laboratory, phone number (360) 871-8748.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; however, the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte cannot be determined from the data due to severe quality control problems. The data are rejected and considered unusable. No value is reported with this qualification.
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. <u>No value is reported with this qualification.</u> ‡

‡ NA is most often applied to spike results where the recovery cannot be determined accurately due to the high native sample concentration.

US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Parameter(s): Hg

Analyte: 7439976 - Mercury

Weight Basis : N/A

Prep Method(s): 245.1 - Cold vapor mercury in water

Analytical Method: 245.1 - Cold vapor mercury in water (CVAAS)

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464459 sam	KRRC-SW01	Water	0.050	ug/L	U	11/29/21	1
21464460 sam	KRRC-SW01	Filtered	0.050	ug/L	U	11/29/21	1
21464461 sam	KRRC-SW03	Water	0.050	ug/L	U	11/29/21	1
21464462 sam	KRRC-SW03	Filtered	0.050	ug/L	U	11/29/21	1
21464463 sam	KRRC-SW04	Water	0.050	ug/L	U	11/29/21	1
21464464 sam	KRRC-SW04	Filtered	0.050	ug/L	U	11/29/21	1
21464465 sam	KRRC-SW05	Water	0.050	ug/L	U	11/29/21	1
21464466 sam	KRRC-SW05	Filtered	0.050	ug/L	U	11/29/21	1
21464467 sam	KRRC-SW03	Water	0.050	ug/L	U	11/29/21	1
21464468 sam	KRRC-SW03	Filtered	0.050	ug/L	U	11/29/21	1
21464469 sam	KRRC-SW02-1	Water	0.050	ug/L	U	11/29/21	1
21464470 sam	KRRC-SW02-1	Filtered	0.050	ug/L	U	11/29/21	1
21464471 sam	KRRC-SW06-1	Water	0.050	ug/L	U	11/29/21	1
21464472 sam	KRRC-SW06-1	Filtered	0.050	ug/L	U	11/29/21	1
21464465 du	KRRC-SW05	Water	0.050	ug/L	U	11/29/21	1
21464466 du	KRRC-SW05	Filtered	0.050	ug/L	U	11/29/21	1
IW112921ABL blk	Blank	Liquid	0.050	ug/L	U	11/29/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464465 ms	KRRC-SW05	Water	108	%Rec		11/29/21	1
21464466 ms	KRRC-SW05	Filtered	99	%Rec		11/29/21	1
21464465 msd	KRRC-SW05	Water	107	%Rec		11/29/21	1
21464466 msd	KRRC-SW05	Filtered	99	%Rec		11/29/21	1
IW112921AL1 lcs	Lab Control Standard	Liquid	101	%Rec		11/29/21	1

Analyte: 7439976 - Mercury

Weight Basis : Dry

Prep Method(s): 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Analytical Method: 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Target Analyte Results:

Target Analyte Results (cont.):

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464450 sam	KRRC-SE01	Sediment	0.0649	mg/Kg		11/17/21	1
21464451 sam	KRRC-SE02	Sediment	0.195	mg/Kg		11/17/21	1
21464452 sam	KRRC-SE03	Sediment	0.0346	mg/Kg		11/17/21	1
21464453 sam	KRRC-SE04	Sediment	0.0201	mg/Kg		11/17/21	1
21464454 sam	KRRC-SE05	Sediment	0.0883	mg/Kg		11/17/21	1
21464455 sam	KRRC-SE06	Sediment	0.182	mg/Kg		11/17/21	1
21464456 sam	KRRC-SE03	Sediment	0.0902	mg/Kg		11/17/21	1
21464457 sam	KRRC-SE02-1	Sediment	0.210	mg/Kg		11/17/21	1
21464458 sam	KRRC-SE06-1	Sediment	0.114	mg/Kg		11/17/21	1
21464454 du	KRRC-SE05	Sediment	0.0864	mg/Kg		11/17/21	1
IS111621ABL blk	Blank	Solid	0.010	mg/Kg	U	11/17/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464454 ms	KRRC-SE05	Sediment	99	%Rec		11/17/21	1
21464454 msd	KRRC-SE05	Sediment	100	%Rec		11/17/21	1
IS111621ACO std	Control	Solid	94	%Rec		11/17/21	20
IS111621AL1 lcs	Lab Control Standard	Solid	100	%Rec		11/17/21	1

APPENDIX C
ANALYTICAL DATA SUMMARY TABLES

Table C-1
Analytical Data Summary Table
Kitsap Rifle and Revolver Club EPA
Region 10

Analyte	CAS.NO	Units	Washington SMS ¹			Station Sample ID Date Type	Background		3x Background Sample - KRRC-SE02 21214451 5/21/2021 FS	Contribution						KRRC-SE03 21214452 5/21/2021 FS	KRRC-SE03 21214456 5/21/2021 FD	
			Freshwater Sediment - SCO	Freshwater Sediment - CSL	KRRC-SE02 21214451 5/21/2021 FS		KRRC-SE02 21464451 11/12/2021 FS	KRRC-SE01 21214450 5/21/2021 FS		KRRC-SE01 21464450 11/12/2021 FS	KRRC-SE02-1 21464457 11/12/2021 FS	KRRC-SE06 21214455 5/21/2021 FS	KRRC-SE06 21464455 11/12/2021 FS	KRRC-SE06-1 21464458 11/12/2021 FS				
Metals (ICP-AES SW-846 6010D)																		
Aluminum	7429-90-5	mg/kg	--	--	--	13600	10700	40800	15100	13400	2680	7570	4860	9660	18400	17500		
Antimony	7440-36-0	mg/kg	--	--	--	1.9 UJ	2 UJ	1.9	2 UJ	2 UJ	1.9 UJ	1.9 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	
Arsenic	7440-38-2	mg/kg	14	120	--	2.3 U	3.9	2.3	2.5	2.8	2.4 U	2.3 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
Barium	7440-39-3	mg/kg	--	--	--	19.9	43.7	59.7	58	68.3	91.4	63.6	75.9	56.8	60.7	54.5		
Beryllium	7440-41-7	mg/kg	--	--	--	0.47	0.944	1.41	0.28	0.26	0.097 U	0.21	0.3	0.18	0.41	0.39		
Cadmium	7440-43-9	mg/kg	2.1	5.4	--	0.94 U	0.99 U	0.94	0.2 U	0.22	1.27	0.19 U	0.41	0.27	0.24	0.2		
Calcium	7440-70-2	mg/kg	--	--	--	3960 J (5069)	8570	11880 (15207)	3870 J (4954)	4160	14300	4020 J (5146)	10400	4580	3340 J (2609)	3450 J (2695)		
Chromium	7440-47-3	mg/kg	72	88	--	18.2	11.5	54.6	30.8	27	4.4	13.5	8.19	27	27.4	25.9		
Cobalt	7440-48-4	mg/kg	--	--	--	3.55	2.4	10.65	9.53	7.92	1.6	1.3	2.4	4.06	6.33	6.43		
Copper	7440-50-8	mg/kg	400	1200	--	9.73	10.9	29.19	20.6	22.6	10.4	5.58	10.6	8.84	16.9	16.5		
Iron	7439-89-6	mg/kg	--	--	--	11000	3780	33000	17200	14600	2640	3780	3340	9950	8430	8910		
Lead	7439-92-1	mg/kg	360	--	--	4.7	106	14.1	58.4	68.2	25.1	11.9	47.2	13.9	75.6	69.6		
Magnesium	7439-95-4	mg/kg	--	--	--	3100	1560	9300	5690	4070	1670	1040	1410	14800	2050	2300		
Manganese	7439-96-5	mg/kg	--	--	--	136 J (169)	129	408 (507)	507 J (629)	380	195	67.9 J (84)	134	163	798 J (644)	738 J (595)		
Nickel	7440-02-0	mg/kg	26	110	--	18.4	16.5	55.2	44.3	35	5.92	12.5	12.1	59	20.7	20.9		
Potassium	7440-09-7	mg/kg	--	--	--	330 U	350 U	330	280	320	290	180	220	330	230	230		
Selenium	7782-49-2	mg/kg	11	--	--	4.7 U	5 U	4.7	4.9 U	5 U	4.8 U	4.7 U	4.9 U	5 U	4.9 U	4.9 U		
Silver	7440-22-4	mg/kg	0.57	1.7	--	0.94 U	0.99 U	0.94	0.99 U	1 U	0.97 U	0.93 U	0.99 U	0.99 U	0.99 U	0.99 U		
Sodium	7440-23-5	mg/kg	--	--	--	71	71	213	181	117	81.8	70.5	64.2	126	82.1	90.4		
Thallium	7440-28-0	mg/kg	--	--	--	4.7 U	5 U	4.7	4.9 U	5 U	4.8 U	4.7 U	4.9 U	5 U	4.9 U	4.9 U		
Vanadium	7440-62-2	mg/kg	--	--	--	32.7	14.3	98.1	50.5	43	8.79	13.6	16.3	23.9	29.4	30		
Zinc	7440-66-6	mg/kg	3200	--	--	18.7	22.7	56.1	49.4	53.8	107	5.99	31	16.9	43.5	40.7		
Mercury (CVAA SW-846 7471B)																		
Mercury	7439-97-6	mg/kg	0.66	0.8	--	0.0532	0.195	0.15	0.0515	0.0649	0.21	0.038	0.182	0.114	0.0822	0.0822		
Polyyclic Aromatic Hydrocarbons (SW-846 8270E)																		
9H-Fluorene	86-73-7	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Acenaphthene	83-32-9	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Acenaphthylene	208-96-8	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Anthracene	120-12-7	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Benz(a)anthracene	56-55-3	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Benz(a)pyrene	50-52-8	ug/kg	--	--	--	49 U	110 U	49	52	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Benz(g,h,i)perylene	191-24-2	ug/kg	--	--	--	49 U	110 U	49	40	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Benz(b)fluoranthene	205-99-2	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Benz(k)fluoranthene	207-08-9	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Chrysene	218-01-9	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Dibenz(a,h)anthracene	53-70-3	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Dibenzofuran	132-64-9	ug/kg	200	680	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Fluoranthene	206-44-0	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Naphthalene	91-20-3	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Naphthalene, 2-methyl-	91-57-6	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Phenanthrene	85-01-8	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		
Pyrene	129-00-0	ug/kg	--	--	--	49 U	110 U	49	33 U	52 U	210 U	49 U	68 U	150 U	50 U	50 U		

= Analyte concentrations exceed three times the selected background concentration

= Analyte concentrations exceed the screening value

= Analyte concentration exceeds both the screening value and three times the selected background concentration

BOLD = Analyte was detected

(2609) = Adjusted value for J qualified data based on reported bias

-- = No benchmark established

¹Washington Sediment Management Standards: Chapter 173-204 Washington Administrative Code (February 2013)

Abbreviations:

µg/kg = micrograms per kilogram

CAS = Chemical Abstracts Service

CSL = Cleanup Screening Level

CVAA = Cold Vapor Atomic Absorption

FD = Field Duplicate

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

J = estimated concentration; high bias for calcium and manganese; low bias for antimony

mg/kg = milligrams per kilogram

SCO = Sediment Cleanup Objective

SMS = Sediment Management Standards

U = The analyte was not detected at or above the reported value

UJ = The analyte was not detected at or above the reported value. The reported value is an estimate.

Table C-1
Sediment Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington SMS ¹		Station Sample ID Date Type	Background		3x Background Sample - KRRC-SE02 21214451	KRRC-SE03 21464452 11/12/2021 FS	KRRC-SE03 21464456 11/12/2021 FD	KRRC-SE04 21214453 5/21/2021 FS	KRRC-SE04 21464453 11/12/2021 FS	KRRC-SE05 21214454 5/21/2021 FS	KRRC-SE05 21464454 11/12/2021 FS	
			Freshwater Sediment - SCO	Freshwater Sediment - CSL		KRRC-SE02 21214451 5/21/2021 FS	KRRC-SE02 21464451 11/12/2021 FS								
Metals (ICP-AES SW-846 6010D)															
Aluminum	7429-90-5	mg/kg	--	--	--	13600	10700	40800	12600	18000	12400	15800	9130	10500	
Antimony	7440-36-0	mg/kg	--	--	--	1.9 UJ	2 UJ	1.9	1.8 UJ	1.9 UJ	1.8 UJ	2 UJ	2 UJ	2 UJ	
Arsenic	7440-38-2	mg/kg	14	120	--	2.3 U	3.9	2.3	2.3 U	2.8	2.3 U	2.4 U	2.5 U	2.5 U	
Barium	7440-39-3	mg/kg	--	--	--	19.9	43.7	59.7	37	63.8	33.2	61.3	21.2	45.5	
Beryllium	7440-41-7	mg/kg	--	--	--	0.47	0.944	1.41	0.24	0.45	0.29	0.43	0.16	0.23	
Cadmium	7440-43-9	mg/kg	2.1	5.4	--	0.94 U	0.99 U	0.94	0.19	0.25	0.18 U	0.2 U	0.2 U	0.21	
Calcium	7440-70-2	mg/kg	--	--	--	3960 J (5069)	8570	11880 (15207)	5290	4520	2990 J (2336)	2910	3860 J (3016)	3750	
Chromium	7440-47-3	mg/kg	72	88	--	18.2	11.5	54.6	29.4	26.2	26.3	30.2	24	22.8	
Cobalt	7440-48-4	mg/kg	--	--	--	3.55	2.4	10.65	7.77	8.48	5.06	8.8	3.49	4.4	
Copper	7440-50-8	mg/kg	400	1200	--	9.73	10.9	29.19	21	18.6	7.45	8.17	8.77	10.7	
Iron	7439-89-6	mg/kg	--	--	--	11000	3780	33000	15400	12100	14100	17100	10500	9860	
Lead	7439-92-1	mg/kg	360	--	--	4.7	106	14.1	21.3	60.1	13.6	2.9	21.6	37.9	
Magnesium	7439-95-4	mg/kg	--	--	--	3100	1560	9300	5020	2760	3900	3410	3760	2900	
Manganese	7439-96-5	mg/kg	--	--	--	136 J (169)	129	408 (507)	487	1120	234 J (189)	1500	142 J (115)	200	
Nickel	7440-02-0	mg/kg	26	110	--	18.4	16.5	55.2	28.1	21.6	22.7	20.1	23.4	21.5	
Potassium	7440-09-7	mg/kg	--	--	--	330 U	350 U	330	321	330 U	180	340 U	200	170	
Selenium	7782-49-2	mg/kg	11	--	--	4.7 U	5 U	4.7	4.6 U	4.7 U	4.5 U	4.9 U	5.1 U	4.9 U	
Silver	7440-22-4	mg/kg	0.57	1.7	--	0.94 U	0.99 U	0.94	0.91 U	0.95 U	0.91 U	0.98 U	1 U	0.98 U	
Sodium	7440-23-5	mg/kg	--	--	--	71	71	213	191	130	64.1	67	73.1	76.4	
Thallium	7440-28-0	mg/kg	--	--	--	4.7 U	5 U	4.7	4.6 U	4.7 U	4.5 U	4.9 U	5.1 U	4.9 U	
Vanadium	7440-62-2	mg/kg	--	--	--	32.7	14.3	98.1	43.3	37.6	44.1	55.2	32.7	34.4	
Zinc	7440-66-6	mg/kg	3200	--	--	18.7	22.7	56.1	33.4	41.7	23.8	21.9	24	32.1	
Mercury (CVAA SW-846 7471B)															
Mercury	7439-97-6	mg/kg	0.66	0.8	--	0.0532	0.195	0.15	0.0346	0.0902	0.0278	0.0201	0.0335	0.0883	
Polycyclic Aromatic Hydrocarbons (SW-846 8270E)															
9H-Fluorene	86-73-7	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Acenaphthene	83-32-9	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Acenaphthylene	208-96-8	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Anthracene	120-12-7	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Benz(a)anthracene	56-55-3	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Benz(o)pyrene	50-32-8	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Benz(g,h,i)perylene	191-24-2	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Benz(b)Fluoranthene	205-99-2	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Benz(k)fluoranthene	207-08-9	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Chrysene	218-01-9	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Dibenzo[a,h]anthracene	53-70-3	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Dibenzofuran	132-64-9	ug/kg	200	680	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Fluoranthene	206-44-0	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Indeno[1,2,3-cd]pyrene	193-39-5	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Naphthalene	91-20-3	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Naphthalene, 2-methyl-	91-57-6	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Phenanthrene	85-01-8	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	
Pyrene	129-00-0	ug/kg	--	--	--	49 U	110 U	49	56 U	43 U	34 U	32 U	49 U	88 U	

Notes:

= Analyte concentrations exceed three times the selected background concentration
= Analyte concentrations exceed the screening value

= Analyte concentration exceeds both the screening value and three times the selected background concentration

BOLD = Analyte was detected

(2609) = Adjusted value for J qualified data based on reported bias

-- = No benchmark established

¹Washington Sediment Management Standards: Chapter 173-204 Washington Administrative Code (February 2013)

Abbreviations:

μg/kg = micrograms per kilogram

CAS = Chemical Abstracts Service

CSL = Cleanup Screening Level

CVAA = Cold Vapor Atomic Absorption

FD = Field Duplicate

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

Table C-2
Surface Water Dissolved Metals Comparison to Background
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Station Sample ID	Background Date	KRRC-SW02 21214460 5/21/2021 FS	3X Background Sample KRRC-SW02	Contribution				KRRC-SW03 21214462 5/21/2021 FS	KRRC-SW03 21464462 11/12/2021 FS	KRRC-SW03 21464468 11/12/2021 FD	KRRC-SW04 21214464 5/21/2021 FS	KRRC-SW04 21214470 5/21/2021 FD
							KRRC-SW01 21464460 11/12/2021 FS	KRRC-SW02-1 21464470 11/12/2021 FS	KRRC-SW06 21214468 5/21/2021 FS	KRRC-SW06-1 21464472 11/12/2021 FS					
Metals (ICP-AES EPA 200.7/200.8)															
Aluminum	7429-90-5	ug/L	--	100 U	100	130	38	100 U	38	130	80.9	97.5	100 U	100 U	
Antimony	7440-36-0	ug/L	--	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Arsenic	7440-38-2	ug/L	--	0.2 U	0.2	0.2 U	0.2	0.2 U	0.2 U	0.32	0.2 U	0.2 U	0.2 U	0.2 U	
Barium	7440-39-3	ug/L	--	3.4	10.2	6.86	2.9	3.6	3.5	4.9	6.03	6.32	7.85	9.17	
Beryllium	7440-41-7	ug/L	--	1 U	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Cadmium	7440-43-9	ug/L	--	0.05 U	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	
Calcium	7440-70-2	ug/L	--	2930	8790	1200	1600	2420	779	2540	2860	3010	2930	3020	
Chromium	7440-47-3	ug/L	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Cobalt	7440-48-4	ug/L	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Copper	7440-50-8	ug/L	--	0.25	0.75	1.42	0.42	0.35	0.83	1.03	0.99	0.92	0.51	0.43	
Iron	7439-89-6	ug/L	--	101	303	25.1	49.2	71	20	228	42.1	53.8	190	167	
Lead	7439-92-1	ug/L	--	0.11	0.33	0.272	0.253	0.14	0.11	0.907	0.24	0.25	0.585	0.487	
Magnesium	7439-95-4	ug/L	--	1200	3600	612	731	865	395	945	1140	1190	1180	1220	
Manganese	7439-96-5	ug/L	--	49.1	147.3	3.3	28.1	13	11.6	168	44.7	47.7	299	250	
Nickel	7440-02-0	ug/L	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Potassium	7440-09-7	ug/L	--	700 U	700	700 U	910	700 U	700 U	700 U	1100	1000	700 U	700 U	
Selenium	7782-49-2	ug/L	--	50 U	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	
Silver	7440-22-4	ug/L	--	10 U	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Sodium	7440-23-5	ug/L	--	1930	5790	1900	1190	1840	1080	1610	1840	1830	2680	2810	
Thallium	7440-28-0	ug/L	--	50 U	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	
Vanadium	7440-62-2	ug/L	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Zinc	7440-66-6	ug/L	--	5 U	5	9.7	7.3	5 U	5 U	5 U	5 U	5 U	16	6.4	
Mercury (CVAA EPA 245.1)															
Mercury	7439-97-6	ug/L	--	0.05 U	0.05	0.05 U	0.05 U	0.05 U	0.0512	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	

Notes:

= Analyte concentrations exceed three times the selected background concentration or the sample quantitation limit

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-2
Surface Water Dissolved Metals Comparison to Background
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Station Sample ID Date Type	Background	3X Background Sample KRRC-SW02	KRRC-SW04 21464464 11/12/2021 FS	KRRC-SW05 21214466 5/21/2021 FS	KRRC-SW05 21464466 11/12/2021 FS
				KRRC-SW02 21214460 5/21/2021 FS				
Metals (ICP-AES EPA 200.7/200.8)								
Aluminum	7429-90-5	ug/L	--	100 U	100	158	100 U	88.6
Antimony	7440-36-0	ug/L	--	0.5 U	0.5	0.5 U	0.5 U	0.5 U
Arsenic	7440-38-2	ug/L	--	0.2 U	0.2	0.2 U	0.2 U	0.2 U
Barium	7440-39-3	ug/L	--	3.4	10.2	9.27	4.9	6.22
Beryllium	7440-41-7	ug/L	--	1 U	1	1 U	1 U	1 U
Cadmium	7440-43-9	ug/L	--	0.05 U	0.05	0.05 U	0.05 U	0.05 U
Calcium	7440-70-2	ug/L	--	2930	8790	3990	4790	4410
Chromium	7440-47-3	ug/L	--	5 U	5	5 U	5 U	5 U
Cobalt	7440-48-4	ug/L	--	5 U	5	5 U	5 U	5 U
Copper	7440-50-8	ug/L	--	0.25	0.75	0.89	0.32	0.62
Iron	7439-89-6	ug/L	--	101	303	58.2	83	98.9
Lead	7439-92-1	ug/L	--	0.11	0.33	0.435	0.076	0.365
Magnesium	7439-95-4	ug/L	--	1200	3600	1640	1760	1610
Manganese	7439-96-5	ug/L	--	49.1	147.3	23.7	93.3	50.2
Nickel	7440-02-0	ug/L	--	5 U	5	5 U	5 U	5 U
Potassium	7440-09-7	ug/L	--	700 U	700	800	700 U	700 U
Selenium	7782-49-2	ug/L	--	50 U	50	50 U	50 U	50 U
Silver	7440-22-4	ug/L	--	10 U	10	10 U	10 U	10 U
Sodium	7440-23-5	ug/L	--	1930	5790	2160	2890	2660
Thallium	7440-28-0	ug/L	--	50 U	50	50 U	50 U	50 U
Vanadium	7440-62-2	ug/L	--	5 U	5	5 U	5 U	5 U
Zinc	7440-66-6	ug/L	--	5 U	5	5.5	5 U	5 U
Mercury (CVAA EPA 245.1)								
Mercury	7439-97-6	ug/L	--	0.05 U	0.05	0.05 U	0.05 U	0.05 U

Notes:

= Analyte concentrations exceed three times the selected background conc

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calcul

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-3
KRRC-SW01 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station	KRRC-SW01
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	130
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	ug/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	ug/L	--	--	--	--	--	--	6.86
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	ug/L	0.12	0.20	--	--	41	--	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	1200
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	ug/L	1.00	1.10	--	--	2900	--	1.42
Iron	7439-89-6	ug/L	--	--	--	--	--	--	25.1
Lead*	7439-92-1	ug/L	0.10	2.50	--	--	--	--	0.272
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	612
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	3.3
Nickel*	7440-02-0	ug/L	14.00	123.00	--	--	1100	--	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	ug/L	--	0.02	--	--	26000	--	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	1900
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	ug/L	9.00	10.00	--	--	17000	--	9.7
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	ug/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

μg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-4
KRRC-SW02 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station	KRRC-SW02
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non- Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	100 U
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	ug/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	ug/L	--	--	--	--	--	--	3.4
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	ug/L	0.30	0.50	--	--	41	--	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	2930
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	ug/L	2.30	2.90	--	--	2900	--	0.25
Iron	7439-89-6	ug/L	--	--	--	--	--	--	101
Lead*	7439-92-1	ug/L	0.30	7.80	--	--	--	--	0.11
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	1200
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	49.1
Nickel*	7440-02-0	ug/L	31.80	286.00	--	--	1100	--	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	ug/L	--	0.10	--	--	26000	--	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	1930
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	ug/L	0.30	7.80	--	--	17000	--	5 U
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	ug/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

μg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-5
KRRC-SW02-1 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW02-1 21464470 11/12/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	38
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	ug/L	190	360	10	0.098	18	--	0.2
Barium	7440-39-3	ug/L	--	--	--	--	--	--	2.9
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	ug/L	0.15	0.20	--	--	41	--	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	1600
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	ug/L	1.20	1.50	--	--	2900	--	0.42
Iron	7439-89-6	ug/L	--	--	--	--	--	--	49.2
Lead*	7439-92-1	ug/L	0.10	3.50	--	--	--	--	0.253
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	731
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	28.1
Nickel*	7440-02-0	ug/L	18.00	158.00	--	--	1100	--	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	910
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	ug/L	--	0.04	--	--	26000	--	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	1190
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	ug/L	12.00	13.00	--	--	17000	--	7.3
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	ug/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-6
KRRC-SW03 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW03 21214460 5/21/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Antimony	7440-36-0	µg/L	--	--	12	--	1000	--	0.5 U
Aluminum	7429-90-5	µg/L	--	--	--	--	--	--	130
Arsenic	7440-38-2	µg/L	190	360	10	0.098	18	--	0.32
Barium	7440-39-3	µg/L	--	--	--	--	--	--	4.9
Beryllium	7440-41-7	µg/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	µg/L	0.2	0.3	--	--	41	--	0.05 U
Calcium	7440-70-2	µg/L	--	--	--	--	--	--	2540
Chromium	7440-47-3	µg/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	µg/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	µg/L	1.8	2.2	--	--	2900	--	1.03
Iron	7439-89-6	µg/L	--	--	--	--	--	--	228
Lead*	7439-92-1	µg/L	0.2	5.6	--	--	--	--	0.9
Magnesium	7439-95-4	µg/L	--	--	--	--	--	--	945
Manganese	7439-96-5	µg/L	--	--	--	--	--	--	168
Nickel*	7440-02-0	µg/L	24.9	223.8	--	--	1100	--	5 U
Potassium	7440-09-7	µg/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	µg/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	µg/L	--	0.1	--	--	26000	--	10 U
Sodium	7440-23-5	µg/L	--	--	--	--	--	--	1610
Thallium	7440-28-0	µg/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	µg/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	µg/L	16.5	18.0	--	--	17000	--	5 U
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	µg/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-7
KRRC-SW03 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW03 21464462 11/12/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	80.9
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	ug/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	ug/L	--	--	--	--	--	--	6.03
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	ug/L	0.23	0.40	--	--	41	--	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	2860
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	ug/L	2.00	2.50	--	--	2900	--	0.99
Iron	7439-89-6	ug/L	--	--	--	--	--	--	42.1
Lead*	7439-92-1	ug/L	0.30	6.80	--	--	--	--	0.24
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	1140
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	44.7
Nickel*	7440-02-0	ug/L	29.00	257.00	--	--	1100	--	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	1100
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	ug/L	--	0.11	--	--	26000	--	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	1840
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	ug/L	19.00	21.00	--	--	17000	--	5 U
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	ug/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

μg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-8
KRRC-SW04 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW04 21214460 5/21/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	µg/L	--	--	--	--	--	--	100 U
Antimony	7440-36-0	µg/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	µg/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	µg/L	--	--	--	--	--	--	7.85
Beryllium	7440-41-7	µg/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	µg/L	0.2	0.4	--	--	41	--	0.05 U
Calcium	7440-70-2	µg/L	--	--	--	--	--	--	2930
Chromium	7440-47-3	µg/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	µg/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	µg/L	2.1	2.6	--	--	2900	--	0.51
Iron	7439-89-6	µg/L	--	--	--	--	--	--	190
Lead*	7439-92-1	µg/L	0.3	7.1	--	--	--	--	0.59
Magnesium	7439-95-4	µg/L	--	--	--	--	--	--	1180
Manganese	7439-96-5	µg/L	--	--	--	--	--	--	299
Nickel*	7440-02-0	µg/L	29.4	265.0	--	--	1100	--	5 U
Potassium	7440-09-7	µg/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	µg/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	µg/L	--	0.1	--	--	26000	--	10 U
Sodium	7440-23-5	µg/L	--	--	--	--	--	--	2680
Thallium	7440-28-0	µg/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	µg/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	µg/L	19.5	21.4	--	--	17000	--	16
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	µg/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-9
KRRC-SW04 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station	KRRC-SW04
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	158
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	ug/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	ug/L	--	--	--	--	--	--	9.27
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	ug/L	0.27	0.50	--	--	41	--	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	3990
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	ug/L	2.50	3.20	--	--	2900	--	0.89
Iron	7439-89-6	ug/L	--	--	--	--	--	--	58.2
Lead*	7439-92-1	ug/L	0.30	8.80	--	--	--	--	0.435
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	1640
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	23.7
Nickel*	7440-02-0	ug/L	35.00	311.00	--	--	1100	--	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	800
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	ug/L	--	0.16	--	--	26000	--	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	2160
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	ug/L	23.00	25.00	--	--	17000	--	5.5
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	ug/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

μg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-10
KRRC-SW05 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW05 21214460 5/21/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh	Surface Water Method B - Cancerous	Surface Water Method B - Non-		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	µg/L	--	--	--	--	--	--	100 U
Antimony	7440-36-0	µg/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	µg/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	µg/L	--	--	--	--	--	--	4.9
Beryllium	7440-41-7	µg/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	µg/L	0.3	0.6	--	--	41	--	0.05 U
Calcium	7440-70-2	µg/L	--	--	--	--	--	--	4790
Chromium	7440-47-3	µg/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	µg/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	µg/L	2.7	3.4	--	--	2900	--	0.32
Iron	7439-89-6	µg/L	--	--	--	--	--	--	83
Lead*	7439-92-1	µg/L	0.4	9.8	--	--	--	--	0.07
Magnesium	7439-95-4	µg/L	--	--	--	--	--	--	1760
Manganese	7439-96-5	µg/L	--	--	--	--	--	--	93.3
Nickel*	7440-02-0	µg/L	37.4	336.4	--	--	1100	--	5 U
Potassium	7440-09-7	µg/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	µg/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	µg/L	--	0.2	--	--	26000	--	10 U
Sodium	7440-23-5	µg/L	--	--	--	--	--	--	2890
Thallium	7440-28-0	µg/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	µg/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	µg/L	24.8	27.1	--	--	17000	--	5 U
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	µg/L	0.012	2	--	--	--	--	0.05 U

Notes:

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-11
KRRC-SW05 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW05 21464466 11/12/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	88.6
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	ug/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	ug/L	--	--	--	--	--	--	6.22
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	ug/L	0.29	0.60	--	--	41	--	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	4410
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	ug/L	2.60	3.40	*	--	2900	--	0.62
Iron	7439-89-6	ug/L	--	--	--	--	--	--	98.9
Lead*	7439-92-1	ug/L	0.40	9.50	--	--	--	--	0.365
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	1610
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	50.2
Nickel*	7440-02-0	ug/L	37.00	330.00	*	--	1100	--	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	ug/L	NS	0.18	--	--	26000	--	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	2660
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	ug/L	24.00	27.00	--	--	17000	--	5 U
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	ug/L	0.012	2	--	--	--	--	0.05 U

Notes:

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-12
KRRC-SW06 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW06 21214460 5/21/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	µg/L	--	--	--	--	--	--	100 U
Antimony	7440-36-0	µg/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	µg/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	µg/L	--	--	--	--	--	--	3.6
Beryllium	7440-41-7	µg/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	µg/L	0.3	0.5	--	--	41	--	0.05 U
Calcium	7440-70-2	µg/L	--	--	--	--	--	--	2420
Chromium	7440-47-3	µg/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	µg/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	µg/L	2.3	3.0	--	--	2900	--	0.35
Iron	7439-89-6	µg/L	--	--	--	--	--	--	71
Lead*	7439-92-1	µg/L	0.3	8.1	--	--	--	--	0.14
Magnesium	7439-95-4	µg/L	--	--	--	--	--	--	865
Manganese	7439-96-5	µg/L	--	--	--	--	--	--	13
Nickel*	7440-02-0	µg/L	32.6	293.9	--	--	1100	--	5 U
Potassium	7440-09-7	µg/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	µg/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	µg/L	--	0.1	--	--	26000	--	10 U
Sodium	7440-23-5	µg/L	--	--	--	--	--	--	1840
Thallium	7440-28-0	µg/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	µg/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	µg/L	21.7	23.7	--	--	17000	--	5 U
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	µg/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-13
KRRC-SW06-1 Dissolved Metals Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	KRRC-SW06-1 21464472 11/12/2021 FS
			Surface Water Aquatic Life Fresh/Chronic	Surface Water Aquatic Life Fresh/Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous		
Metals (ICP-AES EPA 200.7/200.8)									
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	38
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U
Arsenic	7440-38-2	ug/L	190	360	10	0.098	18	--	0.2 U
Barium	7440-39-3	ug/L	--	--	--	--	--	--	3.5
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U
Cadmium*	7440-43-9	ug/L	0.08	0.10	--	--	41	--	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	779
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U
Copper*	7440-50-8	ug/L	0.60	0.70	--	--	2900	--	0.83
Iron	7439-89-6	ug/L	--	--	--	--	--	--	20
Lead*	7439-92-1	ug/L	0.10	1.30	--	--	--	--	0.11
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	395
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	11.6
Nickel*	7440-02-0	ug/L	8.00	76.00	--	--	1100	--	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	700 U
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U
Silver*	7440-22-4	ug/L	--	0.01	--	--	26000	--	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	1080
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U
Zinc*	7440-66-6	ug/L	6.00	6.00	--	--	17000	--	5 U
Mercury (CVAA EPA 245.1)									
Mercury	7439-97-6	ug/L	0.012	2	--	--	--	--	0.05 U

Notes:

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

-- = No benchmark established

*Fresh surface water criteria for the protection of aquatic life are not a single number, calculated based on hardness of the water for the dissolved fraction

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

μg/L = micrograms per liter

CAS = Chemical Abstracts Service

CVAA = Cold Vapor Atomic Absorption

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

Table C-14
Surface Water Total Metals and PAH Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID Date Type	Background	Contribution				KRRC-SW03 21464461 5/21/2021 FS	KRRC-SW03 21464461 5/21/2021 FS	KRRC-SW03 21464461 5/21/2021 FS	KRRC-SW04 21214463 5/21/2021 FS	KRRC-SW04 21214469 5/21/2021 FD		
			Surface Water Aquatic Life Fresh/ Chronic	Surface Water Aquatic Life Fresh/ Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous			3x Background Sample - KRRC-SW02	KRRC-SW01 21464459 11/12/2021 FS	KRRC-SW02-1 21464469 11/12/2021 FS	KRRC-SW06 21214467 5/21/2021 FS	KRRC-SW06-1 21464471 11/12/2021 FS						
			CAS.NO	Units																
Metals (ICP-AES EPA 200.7/200.8)																				
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	646 J (1072)	3216	146	91.2	664 J (1102)	34	789 J (475)	945	508	490 J (295)	320 J (193)	
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Arsenic	7440-38-2	ug/L	--	--	--	0.098	18	--	0.28	0.84	0.2 U	0.22	0.23	0.2 U	0.43	0.21	0.2 U	0.28	0.24	
Barium	7440-39-3	ug/L	--	--	--	--	--	--	15.1	45.3	7	4.4	16.1	3.5	9.82	12.1	9.57	29.1	22.2	
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Cadmium	7440-43-9	ug/L	--	--	--	--	--	--	0.05	0.15	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	3810	11430	1190	1740	4370	647	2820	3160	3070	3320	3140	
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Copper	7440-50-8	ug/L	--	--	--	--	2900	--	1.2	3.6	1.41	0.49	1.52	0.37	1.72	2.06	1.69	0.81	0.7	
Iron	7439-89-6	ug/L	--	--	--	--	--	--	1310	3930	33.8	81.8	472	23	554	574	368	509	373	
Lead	7439-92-1	ug/L	--	--	--	--	--	--	4.97	14.91	0.299	0.81	5.89	0.099	4.61	3.35	1.37	1.91	1.28	
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	1350	4050	634	761	1150	376	1040	1300	1240	1330	1260	
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	233	699	3	32.2	51.8	14.9	397	119	69.9	2360	1530	
Nickel	7440-02-0	ug/L	--	--	--	--	1100	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	700 U	700	700 U	920	700 U	700 U	700 U	700 U	1100	1100	700 U	
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	
Silver	7440-22-4	ug/L	--	--	--	--	26000	--	10 U	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	1840	5520	1880	1200	1910	968	1640	1880	1820	2890	2780	
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Zinc	7440-66-6	ug/L	--	--	--	--	17000	--	8.2	24.6	6.7	5.8	5.9	5.3	5.7	6.9	5.4	19	14	
Mercury (CVAA EPA 245.1)																				
Mercury	7439-97-6	ug/L	--	--	--	--	--	--	0.05 U	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.0512	0.05 U	0.05 U	0.05 U	0.05 U	
Polycyclic Aromatic Hydrocarbons (EPA 8270E / 8270E-SIM)																				
9H-Fluorene	86-73-7	ug/L	--	--	420	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Acenaphthene	83-32-9	ug/L	--	--	110	--	640	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Acenaphthylene	208-96-8	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Anthracene	120-12-7	ug/L	--	--	3100	--	26000	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Benz(a)anthracene	56-55-3	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Benz(o)pyrene	50-32-8	ug/L	--	--	0.0014	0.035	26	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Benz(a,i)perylene	191-24-2	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Benz(b)fluoranthene	205-99-2	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Benz(k)fluoranthene	207-08-9	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chrysene	218-01-9	ug/L	--	--	1.4	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Dibenzo(a,h)anthracene	53-70-3	ug/L	--	--	0.0014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Fluoranthene	206-44-0	ug/L	--	--	16	--	90	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Naphthalene	91-20-3	ug/L	--	--	--	--	4900	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Naphthalene, 2-methyl-	91-57-6	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Phenanthrene	85-01-8	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Pyrene	129-00-0	ug/L	--	--	310	--	2600	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Hardness (SM2340B)																				
Hardness as CaCO3	CaCO3	mg/L	--	--	--	--	--	--	15.1	--	5.58	7.47	15.6	3.17	11.3	13.3	12.8	13.8	13	

= Analyte concentrations exceed three times the selected background concentration

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

(2609) = Adjusted value for J qualified data based on reported bias

-- = No benchmark established

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

²MATCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

ug/L = micrograms per liter

CaCO3 = calcium carbonate

CAS = Chemical Abstracts Service

CVAA=Cold Vapor Atomic Absorption

FD = Field Duplicate

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

J = estimated concentration; high bias for calcium and manganese; low bias for antimony

mg/L = milligrams per liter

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

WAC = Washington Administrative Code

Table C-14
Surface Water Total Metals and PAH Analytical Results Summary
Kitsap Rifle and Revolver Club
EPA Region 10

Analyte	CAS.NO.	Units	Washington Water Quality Standards ¹			MTCA ²		Station Sample ID	Background	3x Background Sample -KRRC-SW02	KRRC-SW04	KRRC-SW05	KRRC-SW05
			Surface Water Aquatic Life Fresh/ Chronic	Surface Water Aquatic Life Fresh/ Acute	Surface Water Human Health Fresh Water	Surface Water Method B - Cancerous	Surface Water Method B - Non-Cancerous						
Metals (ICP-AES EPA 200.7/200.8)													
Aluminum	7429-90-5	ug/L	--	--	--	--	--	--	646 J (1072)	3216	183	100 U	118
Antimony	7440-36-0	ug/L	--	--	12	--	1000	--	0.5 U	0.5	0.5 U	0.5 U	0.5 U
Arsenic	7440-38-2	ug/L	--	--	--	0.098	18	--	0.28	0.84	0.2 U	0.2 U	0.2 U
Barium	7440-39-3	ug/L	--	--	--	--	--	--	15.1	45.3	9.31	4.8	6.48
Beryllium	7440-41-7	ug/L	--	--	--	--	270	--	1 U	1	1 U	1 U	1 U
Cadmium	7440-43-9	ug/L	--	--	--	--	41	--	0.05	0.15	0.05 U	0.05 U	0.05 U
Calcium	7440-70-2	ug/L	--	--	--	--	--	--	3810	11430	4010	4540	4510
Chromium	7440-47-3	ug/L	--	--	--	--	240000	--	5 U	5	5 U	5 U	5 U
Cobalt	7440-48-4	ug/L	--	--	--	--	--	--	5 U	5	5 U	5 U	5 U
Copper	7440-50-8	ug/L	--	--	--	--	2900	--	1.2	3.6	0.82	0.2 U	0.49
Iron	7439-89-6	ug/L	--	--	--	--	--	--	1310	3930	70.5	153	129
Lead	7439-92-1	ug/L	--	--	--	--	--	--	4.97	14.91	0.51	0.2	0.522
Magnesium	7439-95-4	ug/L	--	--	--	--	--	--	1350	4050	1630	1680	1620
Manganese	7439-96-5	ug/L	--	--	--	--	--	--	233	699	23.9	123	58.2
Nickel	7440-02-0	ug/L	--	--	--	--	1100	--	5 U	5	5 U	5 U	5 U
Potassium	7440-09-7	ug/L	--	--	--	--	--	--	700 U	700	800	700 U	700 U
Selenium	7782-49-2	ug/L	5	20	120	--	2700	--	50 U	50	50 U	50 U	50 U
Silver	7440-22-4	ug/L	--	--	--	--	26000	--	10 U	10	10 U	10 U	10 U
Sodium	7440-23-5	ug/L	--	--	--	--	--	--	1840	5520	2100	2760	2670
Thallium	7440-28-0	ug/L	--	--	0.24	--	0.22	--	50 U	50	50 U	50 U	50 U
Vanadium	7440-62-2	ug/L	--	--	--	--	--	--	5 U	5	5 U	5 U	5 U
Zinc	7440-66-6	ug/L	--	--	--	--	17000	--	8.2	24.6	5 U	5 U	5 U
Mercury (CVAA EPA 245.1)													
Mercury	7439-97-6	ug/L	--	--	--	--	--	--	0.05 U	0.05	0.05 U	0.05 U	0.05 U
Polycyclic Aromatic Hydrocarbons (EPA 8270E / 8270E-SIM)													
9H-Fluorene	86-73-7	ug/L	--	--	420	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Acenaphthene	83-32-9	ug/L	--	--	110	--	640	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Acenaphthylene	208-96-8	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Anthracene	120-12-7	ug/L	--	--	3100	--	26000	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Benz(a)anthracene	56-55-3	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Benz(a)pyrene	50-32-8	ug/L	--	--	0.0014	0.035	26	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Benz(g,h,i)perylene	191-24-2	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Benz(b)fluoranthene	205-99-2	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Benz(k)fluoranthene	207-08-9	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Chrysene	218-01-9	ug/L	--	--	1.4	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Dibenz(a,h)anthracene	53-70-3	ug/L	--	--	0.0014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Fluoranthene	206-44-0	ug/L	--	--	16	--	90	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	--	--	0.014	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Naphthalene	91-20-3	ug/L	--	--	--	--	4900	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Naphthalene, 2-methyl-	91-57-6	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Phenanthrene	85-01-8	ug/L	--	--	--	--	--	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Pyrene	129-00-0	ug/L	--	--	310	--	2600	--	0.02 U	0.02	0.025 U	0.025 U	0.025 U
Hardness (SM2340B)													
Hardness as CaCO ₃	CaCO ₃	mg/L	--	--	--	--	--	--	15.1	--	16.7	18.3	17.9

Notes:

= Analyte concentrations exceed three times the selected background concentration

= Analyte concentrations exceed the screening value

BOLD = Analyte was detected

(2609) = Adjusted value for J qualified data based on reported bias

-- = No benchmark established

¹Washington Water Quality Standards: WAC Chapter 173-201A-240 (December 2019)

² MTCA: WAC Chapter 173-340-730 (February 2021)

Abbreviations:

ug/L = micrograms per liter

CaCO₃ = calcium carbonate

CAS = Chemical Abstracts Service

CVAA=Cold Vapor Atomic Absorption

FD = Field Duplicate

FS = Field Sample

ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy

J = estimated concentration; high bias for calcium and manganese; low bias for antimony

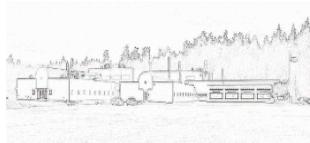
mg/L = milligrams per liter

MTCA = Model Toxics Control Act

U = The analyte was not detected at or above the reported value

WAC = Washington Administrative Code

APPENDIX D
LABORATORY REPORTS



US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Parameter(s): Hardness

Analyte: *90080 - Hardness as CaCO₃

Weight Basis : N/A

Prep Method(s): 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

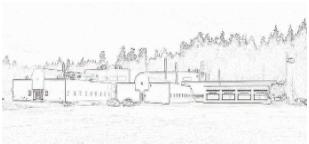
Analytical Method: SM2340B - Hardness by Calculation, Standard Methods

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214459 sam	KRRC-SW02	Water	15.1	mg/L		6/7/21	2
21214461 sam	KRRC-SW03	Water	11.3	mg/L		6/7/21	2
21214463 sam	KRRC-SW04	Water	13.8	mg/L		6/7/21	2
21214465 sam	KRRC-SW05	Water	18.3	mg/L		6/7/21	2
21214467 sam	KRRC-SW06	Water	15.6	mg/L		6/7/21	2
21214469 sam	KRRC-SW04	Water	13.0	mg/L		6/7/21	2
21214461 du	KRRC-SW03	Water	11.2	mg/L		6/7/21	2
IW060121ABL blk	Blank	Liquid	0.30	mg/L	U	6/7/21	2

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214461 ms	KRRC-SW03	Water	97	%Rec		6/7/21	2
21214461 msd	KRRC-SW03	Water	102	%Rec		6/7/21	2
IW060121AL1 lcs	Lab Control Standard	Liquid	95	%Rec		6/7/21	2



US EPA Region 10 Laboratory



Multi-Analyte Final Report

Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Sample : 21214450

Information : KRRC-SE01

Matrix : Sediment

Collected : 5/21/2021 2:30:00PM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	15100	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg		6/15/21	1
7440393	Barium	58.0	mg/Kg		6/15/21	1
7440417	Beryllium	0.28	mg/Kg		6/15/21	1
7440439	Cadmium	0.20	mg/Kg	U	6/15/21	1
7440702	Calcium	3870	mg/Kg	J	6/15/21	1
7440473	Chromium	30.8	mg/Kg		6/15/21	1
7440484	Cobalt	9.53	mg/Kg		6/15/21	1
7440508	Copper	20.6	mg/Kg		6/15/21	1
7439896	Iron	17200	mg/Kg		6/15/21	1
7439921	Lead	58.4	mg/Kg		6/15/21	1
7439954	Magnesium	5690	mg/Kg		6/15/21	1
7439965	Manganese	507	mg/Kg	J	6/15/21	1
7440020	Nickel	44.3	mg/Kg		6/15/21	1
7440097	Potassium	280	mg/Kg		6/15/21	1
7782492	Selenium	4.9	mg/Kg	U	6/15/21	1
7440224	Silver	0.99	mg/Kg	U	6/15/21	1
7440235	Sodium	181	mg/Kg		6/15/21	1
7440280	Thallium	4.9	mg/Kg	U	6/15/21	1
7440622	Vanadium	50.5	mg/Kg		6/15/21	1
7440666	Zinc	49.4	mg/Kg		6/15/21	1

Sample : 21214451

Information : KRRC-SE02

Matrix : Sediment

Collected : 5/21/2021 1:15:00PM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	13600	mg/Kg		6/15/21	5
7440360	Antimony	1.9	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.3	mg/Kg	U	6/15/21	1
7440393	Barium	19.9	mg/Kg		6/15/21	1
7440417	Beryllium	0.470	mg/Kg		6/15/21	1
7440439	Cadmium	0.94	mg/Kg	U	6/15/21	5
7440702	Calcium	3960	mg/Kg	J	6/15/21	5
7440473	Chromium	18.2	mg/Kg		6/15/21	1
7440484	Cobalt	3.55	mg/Kg		6/15/21	1
7440508	Copper	9.73	mg/Kg		6/15/21	1
7439896	Iron	11000	mg/Kg		6/15/21	5
7439921	Lead	4.7	mg/Kg		6/15/21	1
7439954	Magnesium	3100	mg/Kg		6/15/21	5
7439965	Manganese	136	mg/Kg	J	6/15/21	1
7440020	Nickel	18.4	mg/Kg		6/15/21	5
7440097	Potassium	330	mg/Kg	U	6/15/21	5
7782492	Selenium	4.7	mg/Kg	U	6/15/21	1
7440224	Silver	0.94	mg/Kg	U	6/15/21	1
7440235	Sodium	71	mg/Kg		6/15/21	5
7440280	Thallium	4.7	mg/Kg	U	6/15/21	1
7440622	Vanadium	32.7	mg/Kg		6/15/21	1
7440666	Zinc	18.7	mg/Kg		6/15/21	5

Sample : 21214452

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 10:05:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	18400	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	60.7	mg/Kg		6/15/21	1
7440417	Beryllium	0.41	mg/Kg		6/15/21	1
7440439	Cadmium	0.24	mg/Kg		6/15/21	1
7440702	Calcium	3340	mg/Kg	J	6/15/21	1
7440473	Chromium	27.4	mg/Kg		6/15/21	1
7440484	Cobalt	6.33	mg/Kg		6/15/21	1
7440508	Copper	16.9	mg/Kg		6/15/21	1
7439896	Iron	8430	mg/Kg		6/15/21	1
7439921	Lead	75.6	mg/Kg		6/15/21	1
7439954	Magnesium	2050	mg/Kg		6/15/21	1
7439965	Manganese	798	mg/Kg	J	6/15/21	1
7440020	Nickel	20.7	mg/Kg		6/15/21	1
7440097	Potassium	230	mg/Kg		6/15/21	1
7782492	Selenium	4.9	mg/Kg	U	6/15/21	1
7440224	Silver	0.99	mg/Kg	U	6/15/21	1
7440235	Sodium	82.1	mg/Kg		6/15/21	1
7440280	Thallium	4.9	mg/Kg	U	6/15/21	1
7440622	Vanadium	29.4	mg/Kg		6/15/21	1
7440666	Zinc	43.5	mg/Kg		6/15/21	1

Sample : 21214453

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	12400	mg/Kg		6/15/21	1
7440360	Antimony	1.8	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.3	mg/Kg	U	6/15/21	1
7440393	Barium	33.2	mg/Kg		6/15/21	1
7440417	Beryllium	0.29	mg/Kg		6/15/21	1
7440439	Cadmium	0.18	mg/Kg	U	6/15/21	1
7440702	Calcium	2990	mg/Kg	J	6/15/21	1
7440473	Chromium	26.3	mg/Kg		6/15/21	1
7440484	Cobalt	5.06	mg/Kg		6/15/21	1
7440508	Copper	7.45	mg/Kg		6/15/21	1
7439896	Iron	14100	mg/Kg		6/15/21	1
7439921	Lead	13.6	mg/Kg		6/15/21	1
7439954	Magnesium	3900	mg/Kg		6/15/21	1
7439965	Manganese	234	mg/Kg	J	6/15/21	1
7440020	Nickel	22.7	mg/Kg		6/15/21	1
7440097	Potassium	180	mg/Kg		6/15/21	1
7782492	Selenium	4.5	mg/Kg	U	6/15/21	1
7440224	Silver	0.91	mg/Kg	U	6/15/21	1
7440235	Sodium	64.1	mg/Kg		6/15/21	1
7440280	Thallium	4.5	mg/Kg	U	6/15/21	1
7440622	Vanadium	44.1	mg/Kg		6/15/21	1
7440666	Zinc	23.8	mg/Kg		6/15/21	1

Sample : 21214454

Information : KRRC-SE05

Matrix : Sediment

Collected : 5/21/2021 8:30:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	9130	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	21.2	mg/Kg		6/15/21	1
7440417	Beryllium	0.16	mg/Kg		6/15/21	1
7440439	Cadmium	0.20	mg/Kg	U	6/15/21	1
7440702	Calcium	3860	mg/Kg	J	6/15/21	1
7440473	Chromium	24.0	mg/Kg		6/15/21	1
7440484	Cobalt	3.49	mg/Kg		6/15/21	1
7440508	Copper	8.77	mg/Kg		6/15/21	1
7439896	Iron	10500	mg/Kg		6/15/21	1
7439921	Lead	21.6	mg/Kg		6/15/21	1
7439954	Magnesium	3760	mg/Kg		6/15/21	1
7439965	Manganese	142	mg/Kg	J	6/15/21	1
7440020	Nickel	23.4	mg/Kg		6/15/21	1
7440097	Potassium	200	mg/Kg		6/15/21	1
7782492	Selenium	5.1	mg/Kg	U	6/15/21	1
7440224	Silver	1.0	mg/Kg	U	6/15/21	1
7440235	Sodium	73.1	mg/Kg		6/15/21	1
7440280	Thallium	5.1	mg/Kg	U	6/15/21	1
7440622	Vanadium	32.7	mg/Kg		6/15/21	1
7440666	Zinc	24.0	mg/Kg		6/15/21	1

Sample : 21214455

Information : KRRC-SE06

Matrix : Sediment

Collected : 5/21/2021 12:35:00PM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	7570	mg/Kg		6/15/21	1
7440360	Antimony	1.9	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.3	mg/Kg	U	6/15/21	1
7440393	Barium	63.6	mg/Kg		6/15/21	1
7440417	Beryllium	0.21	mg/Kg		6/15/21	1
7440439	Cadmium	0.19	mg/Kg	U	6/15/21	1
7440702	Calcium	4020	mg/Kg	J	6/15/21	1
7440473	Chromium	13.5	mg/Kg		6/15/21	1
7440484	Cobalt	1.3	mg/Kg		6/15/21	1
7440508	Copper	5.58	mg/Kg		6/15/21	1
7439896	Iron	3780	mg/Kg		6/15/21	1
7439921	Lead	11.9	mg/Kg		6/15/21	1
7439954	Magnesium	1040	mg/Kg		6/15/21	1
7439965	Manganese	67.9	mg/Kg	J	6/15/21	1
7440020	Nickel	12.5	mg/Kg		6/15/21	1
7440097	Potassium	180	mg/Kg		6/15/21	1
7782492	Selenium	4.7	mg/Kg	U	6/15/21	1
7440224	Silver	0.93	mg/Kg	U	6/15/21	1
7440235	Sodium	70.5	mg/Kg		6/15/21	1
7440280	Thallium	4.7	mg/Kg	U	6/15/21	1
7440622	Vanadium	13.6	mg/Kg		6/15/21	1
7440666	Zinc	5.99	mg/Kg		6/15/21	1

Sample : 21214456

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 11:30:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	17500	mg/Kg		6/15/21	1
7440360	Antimony	2.0	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	54.5	mg/Kg		6/15/21	1
7440417	Beryllium	0.39	mg/Kg		6/15/21	1
7440439	Cadmium	0.20	mg/Kg		6/15/21	1
7440702	Calcium	3450	mg/Kg	J	6/15/21	1
7440473	Chromium	25.9	mg/Kg		6/15/21	1
7440484	Cobalt	6.43	mg/Kg		6/15/21	1
7440508	Copper	16.5	mg/Kg		6/15/21	1
7439896	Iron	8910	mg/Kg		6/15/21	1
7439921	Lead	69.6	mg/Kg		6/15/21	1
7439954	Magnesium	2300	mg/Kg		6/15/21	1
7439965	Manganese	738	mg/Kg	J	6/15/21	1
7440020	Nickel	20.9	mg/Kg		6/15/21	1
7440097	Potassium	230	mg/Kg		6/15/21	1
7782492	Selenium	4.9	mg/Kg	U	6/15/21	1
7440224	Silver	0.99	mg/Kg	U	6/15/21	1
7440235	Sodium	90.4	mg/Kg		6/15/21	1
7440280	Thallium	4.9	mg/Kg	U	6/15/21	1
7440622	Vanadium	30.0	mg/Kg		6/15/21	1
7440666	Zinc	40.7	mg/Kg		6/15/21	1

Sample : 21214459

Information : KRRC-SW02

Matrix : Water

Collected : 5/21/2021 1:15:00PM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.28	ug/L	U	6/16/21	2
7440439	Cadmium	0.059	ug/L	U	6/16/21	2
7440508	Copper	1.20	ug/L	U	6/16/21	2
7439921	Lead	4.97	ug/L	U	6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	646	ug/L	J	6/ 7/21	2
7440393	Barium	15.1	ug/L	U	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	3810	ug/L	U	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	1310	ug/L	U	6/ 7/21	2
7439954	Magnesium	1350	ug/L	U	6/ 7/21	2
7439965	Manganese	233	ug/L	U	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1840	ug/L	U	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	8.2	ug/L	U	6/ 7/21	2

Sample : 21214460

Information : KRRC-SW02

Matrix : Filtered

Collected : 5/21/2021 1:15:00PM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.25	ug/L		6/16/21	2
7439921	Lead	0.11	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	3.4	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2930	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	101	ug/L		6/ 7/21	2
7439954	Magnesium	1200	ug/L		6/ 7/21	2
7439965	Manganese	49.1	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1930	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214461

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.43	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.72	ug/L		6/16/21	2
7439921	Lead	4.61	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	789	ug/L	J	6/ 7/21	2
7440393	Barium	9.82	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2820	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	554	ug/L		6/ 7/21	2
7439954	Magnesium	1040	ug/L		6/ 7/21	2
7439965	Manganese	397	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1640	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.7	ug/L		6/ 7/21	2

Sample : 21214462

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.32	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.03	ug/L		6/16/21	2
7439921	Lead	0.907	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	130	ug/L		6/ 7/21	2
7440393	Barium	4.9	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2540	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	228	ug/L		6/ 7/21	2
7439954	Magnesium	945	ug/L		6/ 7/21	2
7439965	Manganese	168	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1610	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214463

Information : KRRC-SW04

Matrix : Water

Collected : 5/21/2021 9:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.28	ug/L		6/16/21	2
7440439	Cadmium	0.074	ug/L		6/16/21	2
7440508	Copper	0.81	ug/L		6/16/21	2
7439921	Lead	1.91	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	490	ug/L	J	6/ 7/21	2
7440393	Barium	29.1	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	3320	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	509	ug/L		6/ 7/21	2
7439954	Magnesium	1330	ug/L		6/ 7/21	2
7439965	Manganese	2360	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2890	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	19	ug/L		6/ 7/21	2

Sample : 21214464

Information : KRRC-SW04

Matrix : Filtered

Collected : 5/21/2021 9:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.51	ug/L		6/16/21	2
7439921	Lead	0.585	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	7.85	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2930	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	190	ug/L		6/ 7/21	2
7439954	Magnesium	1180	ug/L		6/ 7/21	2
7439965	Manganese	299	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2680	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	16	ug/L		6/ 7/21	2

Sample : 21214465

Information : KRRC-SW05

Matrix : Water

Collected : 5/21/2021 8:30:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.20	ug/L	U	6/16/21	2
7439921	Lead	0.20	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	4.8	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	4540	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	153	ug/L		6/ 7/21	2
7439954	Magnesium	1680	ug/L		6/ 7/21	2
7439965	Manganese	123	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2760	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214466

Information : KRRC-SW05

Matrix : Filtered

Collected : 5/21/2021 8:30:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.32	ug/L		6/16/21	2
7439921	Lead	0.076	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	4.9	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	4790	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	83	ug/L		6/ 7/21	2
7439954	Magnesium	1760	ug/L		6/ 7/21	2
7439965	Manganese	93.3	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2890	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214467

Information : KRRC-SW06

Matrix : Water

Collected : 5/21/2021 12:35:00PM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.23	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.52	ug/L		6/16/21	2
7439921	Lead	5.89	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	664	ug/L	J	6/ 7/21	2
7440393	Barium	16.1	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	4370	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	472	ug/L		6/ 7/21	2
7439954	Magnesium	1150	ug/L		6/ 7/21	2
7439965	Manganese	51.8	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1910	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.9	ug/L		6/ 7/21	2

Sample : 21214468

Information : KRRC-SW06

Matrix : Filtered

Collected : 5/21/2021 12:35:00PM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.35	ug/L		6/16/21	2
7439921	Lead	0.14	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	3.6	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2420	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	71	ug/L		6/ 7/21	2
7439954	Magnesium	865	ug/L		6/ 7/21	2
7439965	Manganese	13.0	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1840	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214469

Information : KRRC-SW04

Matrix : Water

Collected : 5/21/2021 11:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.24	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.70	ug/L		6/16/21	2
7439921	Lead	1.28	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	320	ug/L	J	6/ 7/21	2
7440393	Barium	22.2	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	3140	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	373	ug/L		6/ 7/21	2
7439954	Magnesium	1260	ug/L		6/ 7/21	2
7439965	Manganese	1530	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2780	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	14	ug/L		6/ 7/21	2

Sample : 21214470

Information : KRRC-SW04

Matrix : Filtered

Collected : 5/21/2021 11:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.43	ug/L		6/16/21	2
7439921	Lead	0.487	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	9.17	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	3020	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	167	ug/L		6/ 7/21	2
7439954	Magnesium	1220	ug/L		6/ 7/21	2
7439965	Manganese	250	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	2810	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	6.4	ug/L		6/ 7/21	2

Sample : 21214453 Sample Duplicate

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	11800	mg/Kg		6/15/21	1
7440360	Antimony	2.1	mg/Kg	UJ	6/15/21	1
7440382	Arsenic	2.6	mg/Kg	U	6/15/21	1
7440393	Barium	30.2	mg/Kg		6/15/21	1
7440417	Beryllium	0.28	mg/Kg		6/15/21	1
7440439	Cadmium	0.21	mg/Kg	U	6/15/21	1
7440702	Calcium	3110	mg/Kg	J	6/15/21	1
7440473	Chromium	26.8	mg/Kg		6/15/21	1
7440484	Cobalt	4.40	mg/Kg		6/15/21	1
7440508	Copper	7.26	mg/Kg		6/15/21	1
7439896	Iron	13100	mg/Kg		6/15/21	1
7439921	Lead	13.7	mg/Kg		6/15/21	1
7439954	Magnesium	3500	mg/Kg		6/15/21	1
7439965	Manganese	218	mg/Kg	J	6/15/21	1
7440020	Nickel	22.4	mg/Kg		6/15/21	1
7440097	Potassium	180	mg/Kg		6/15/21	1
7782492	Selenium	5.2	mg/Kg	U	6/15/21	1
7440224	Silver	1.0	mg/Kg	U	6/15/21	1
7440235	Sodium	63.0	mg/Kg		6/15/21	1
7440280	Thallium	5.2	mg/Kg	U	6/15/21	1
7440622	Vanadium	42.5	mg/Kg		6/15/21	1
7440666	Zinc	22.6	mg/Kg		6/15/21	1

Sample : 21214461 Sample Duplicate

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.41	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.69	ug/L		6/16/21	2
7439921	Lead	4.72	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	788	ug/L	J	6/ 7/21	2
7440393	Barium	9.76	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2800	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	551	ug/L		6/ 7/21	2
7439954	Magnesium	1040	ug/L		6/ 7/21	2
7439965	Manganese	398	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1640	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.6	ug/L		6/ 7/21	2

Sample : 21214462 Sample Duplicate

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.35	ug/L		6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	1.00	ug/L		6/16/21	2
7439921	Lead	0.899	ug/L		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	130	ug/L		6/ 7/21	2
7440393	Barium	4.9	ug/L		6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	2540	ug/L		6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	227	ug/L		6/ 7/21	2
7439954	Magnesium	944	ug/L		6/ 7/21	2
7439965	Manganese	169	ug/L		6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	1620	ug/L		6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : 21214453 Matrix Spike

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	6/15/21	1
7440360	Antimony	44	%Rec		6/15/21	1
7440382	Arsenic	101	%Rec		6/15/21	1
7440393	Barium	94	%Rec		6/15/21	1
7440417	Beryllium	95	%Rec		6/15/21	1
7440439	Cadmium	85	%Rec		6/15/21	1
7440702	Calcium	129	%Rec		6/15/21	1
7440473	Chromium	102	%Rec		6/15/21	1
7440484	Cobalt	92	%Rec		6/15/21	1
7440508	Copper	97	%Rec		6/15/21	1
7439896	Iron			NA	6/15/21	1
7439921	Lead	91	%Rec		6/15/21	1
7439954	Magnesium	90	%Rec		6/15/21	1
7439965	Manganese	106	%Rec		6/15/21	1
7440020	Nickel	85	%Rec		6/15/21	1
7440097	Potassium	96	%Rec		6/15/21	1
7782492	Selenium	93	%Rec		6/15/21	1
7440224	Silver	94	%Rec		6/15/21	1
7440235	Sodium	91	%Rec		6/15/21	1
7440280	Thallium	98	%Rec		6/15/21	1
7440622	Vanadium	101	%Rec		6/15/21	1
7440666	Zinc	85	%Rec		6/15/21	1

Sample : 21214461 Matrix Spike

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	94	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	99	%Rec		6/16/21	2
7440508	Copper	99	%Rec		6/16/21	2
7439921	Lead	110	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	118	%Rec		6/ 7/21	2
7440393	Barium	99	%Rec		6/ 7/21	2
7440417	Beryllium	100	%Rec		6/ 7/21	2
7440702	Calcium	97	%Rec		6/ 7/21	2
7440473	Chromium	96	%Rec		6/ 7/21	2
7440484	Cobalt	97	%Rec		6/ 7/21	2
7439896	Iron	110	%Rec		6/ 7/21	2
7439954	Magnesium	96	%Rec		6/ 7/21	2
7439965	Manganese	101	%Rec		6/ 7/21	2
7440020	Nickel	97	%Rec		6/ 7/21	2
7440097	Potassium	101	%Rec		6/ 7/21	2
7782492	Selenium	103	%Rec		6/ 7/21	2
7440224	Silver	94	%Rec		6/ 7/21	2
7440235	Sodium	96	%Rec		6/ 7/21	2
7440280	Thallium	100	%Rec		6/ 7/21	2
7440622	Vanadium	99	%Rec		6/ 7/21	2
7440666	Zinc	101	%Rec		6/ 7/21	2

Sample : 21214462 Matrix Spike

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	100	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	99	%Rec		6/16/21	2
7440508	Copper	100	%Rec		6/16/21	2
7439921	Lead	109	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	103	%Rec		6/ 7/21	2
7440393	Barium	99	%Rec		6/ 7/21	2
7440417	Beryllium	100	%Rec		6/ 7/21	2
7440702	Calcium	96	%Rec		6/ 7/21	2
7440473	Chromium	95	%Rec		6/ 7/21	2
7440484	Cobalt	99	%Rec		6/ 7/21	2
7439896	Iron	101	%Rec		6/ 7/21	2
7439954	Magnesium	96	%Rec		6/ 7/21	2
7439965	Manganese	94	%Rec		6/ 7/21	2
7440020	Nickel	100	%Rec		6/ 7/21	2
7440097	Potassium	101	%Rec		6/ 7/21	2
7782492	Selenium	106	%Rec		6/ 7/21	2
7440224	Silver	94	%Rec		6/ 7/21	2
7440235	Sodium	95	%Rec		6/ 7/21	2
7440280	Thallium	103	%Rec		6/ 7/21	2
7440622	Vanadium	98	%Rec		6/ 7/21	2
7440666	Zinc	104	%Rec		6/ 7/21	2

Sample : 21214453 Matrix Spike#2

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	6/15/21	1
7440360	Antimony	43	%Rec		6/15/21	1
7440382	Arsenic	101	%Rec		6/15/21	1
7440393	Barium	87	%Rec		6/15/21	1
7440417	Beryllium	96	%Rec		6/15/21	1
7440439	Cadmium	84	%Rec		6/15/21	1
7440702	Calcium	143	%Rec		6/15/21	1
7440473	Chromium	99	%Rec		6/15/21	1
7440484	Cobalt	90	%Rec		6/15/21	1
7440508	Copper	99	%Rec		6/15/21	1
7439896	Iron			NA	6/15/21	1
7439921	Lead	89	%Rec		6/15/21	1
7439954	Magnesium	87	%Rec		6/15/21	1
7439965	Manganese	138	%Rec		6/15/21	1
7440020	Nickel	83	%Rec		6/15/21	1
7440097	Potassium	93	%Rec		6/15/21	1
7782492	Selenium	90	%Rec		6/15/21	1
7440224	Silver	93	%Rec		6/15/21	1
7440235	Sodium	89	%Rec		6/15/21	1
7440280	Thallium	97	%Rec		6/15/21	1
7440622	Vanadium	123	%Rec		6/15/21	1
7440666	Zinc	84	%Rec		6/15/21	1

Sample : 21214461 Matrix Spike#2

Information : KRRC-SW03

Matrix : Water

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	92	%Rec		6/16/21	2
7440382	Arsenic	99	%Rec		6/16/21	2
7440439	Cadmium	98	%Rec		6/16/21	2
7440508	Copper	96	%Rec		6/16/21	2
7439921	Lead	108	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	128	%Rec		6/ 7/21	2
7440393	Barium	104	%Rec		6/ 7/21	2
7440417	Beryllium	105	%Rec		6/ 7/21	2
7440702	Calcium	103	%Rec		6/ 7/21	2
7440473	Chromium	100	%Rec		6/ 7/21	2
7440484	Cobalt	102	%Rec		6/ 7/21	2
7439896	Iron	123	%Rec		6/ 7/21	2
7439954	Magnesium	102	%Rec		6/ 7/21	2
7439965	Manganese	116	%Rec		6/ 7/21	2
7440020	Nickel	103	%Rec		6/ 7/21	2
7440097	Potassium	106	%Rec		6/ 7/21	2
7782492	Selenium	108	%Rec		6/ 7/21	2
7440224	Silver	97	%Rec		6/ 7/21	2
7440235	Sodium	101	%Rec		6/ 7/21	2
7440280	Thallium	105	%Rec		6/ 7/21	2
7440622	Vanadium	103	%Rec		6/ 7/21	2
7440666	Zinc	106	%Rec		6/ 7/21	2

Sample : 21214462 Matrix Spike#2

Information : KRRC-SW03

Matrix : Filtered

Collected : 5/21/2021 10:05:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	100	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	101	%Rec		6/16/21	2
7440508	Copper	99	%Rec		6/16/21	2
7439921	Lead	110	%Rec		6/16/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	107	%Rec		6/ 7/21	2
7440393	Barium	103	%Rec		6/ 7/21	2
7440417	Beryllium	105	%Rec		6/ 7/21	2
7440702	Calcium	101	%Rec		6/ 7/21	2
7440473	Chromium	100	%Rec		6/ 7/21	2
7440484	Cobalt	100	%Rec		6/ 7/21	2
7439896	Iron	105	%Rec		6/ 7/21	2
7439954	Magnesium	100	%Rec		6/ 7/21	2
7439965	Manganese	99	%Rec		6/ 7/21	2
7440020	Nickel	101	%Rec		6/ 7/21	2
7440097	Potassium	103	%Rec		6/ 7/21	2
7782492	Selenium	106	%Rec		6/ 7/21	2
7440224	Silver	95	%Rec		6/ 7/21	2
7440235	Sodium	99	%Rec		6/ 7/21	2
7440280	Thallium	104	%Rec		6/ 7/21	2
7440622	Vanadium	103	%Rec		6/ 7/21	2
7440666	Zinc	105	%Rec		6/ 7/21	2

Sample : IS061421ABL Blank**Information :** Blank**Matrix :** Solid**Parameter :** ICP-AES**Fraction :** Total**Prep Method:** 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846**Analysis Method:** 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	mg/Kg	U	6/15/21	1
7440360	Antimony	2.0	mg/Kg	U	6/15/21	1
7440382	Arsenic	2.5	mg/Kg	U	6/15/21	1
7440393	Barium	0.10	mg/Kg	U	6/15/21	1
7440417	Beryllium	0.10	mg/Kg	U	6/15/21	1
7440439	Cadmium	0.20	mg/Kg	U	6/15/21	1
7440702	Calcium	5.0	mg/Kg	U	6/15/21	1
7440473	Chromium	0.50	mg/Kg	U	6/15/21	1
7440484	Cobalt	0.50	mg/Kg	U	6/15/21	1
7440508	Copper	0.50	mg/Kg	U	6/15/21	1
7439896	Iron	5.0	mg/Kg	U	6/15/21	1
7439921	Lead	2.5	mg/Kg	U	6/15/21	1
7439954	Magnesium	5.0	mg/Kg	U	6/15/21	1
7439965	Manganese	0.20	mg/Kg	U	6/15/21	1
7440020	Nickel	0.50	mg/Kg	U	6/15/21	1
7440097	Potassium	70	mg/Kg	U	6/15/21	1
7782492	Selenium	5.0	mg/Kg	U	6/15/21	1
7440224	Silver	1.0	mg/Kg	U	6/15/21	1
7440235	Sodium	10	mg/Kg	U	6/15/21	1
7440280	Thallium	5.0	mg/Kg	U	6/15/21	1
7440622	Vanadium	0.50	mg/Kg	U	6/15/21	1
7440666	Zinc	2.0	mg/Kg	U	6/15/21	1

Sample : IW060121ABL Blank**Information :** Blank**Matrix :** Liquid**Parameter :** ICP/MS**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.8 - ICPMS 18 Elements**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440360	Antimony	0.50	ug/L	U	6/16/21	2
7440382	Arsenic	0.20	ug/L	U	6/16/21	2
7440439	Cadmium	0.050	ug/L	U	6/16/21	2
7440508	Copper	0.20	ug/L	U	6/16/21	2
7439921	Lead	0.050	ug/L	U	6/16/21	2

Parameter : ICP-AES**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	100	ug/L	U	6/ 7/21	2
7440393	Barium	1.0	ug/L	U	6/ 7/21	2
7440417	Beryllium	1.0	ug/L	U	6/ 7/21	2
7440702	Calcium	50	ug/L	U	6/ 7/21	2
7440473	Chromium	5.0	ug/L	U	6/ 7/21	2
7440484	Cobalt	5.0	ug/L	U	6/ 7/21	2
7439896	Iron	20	ug/L	U	6/ 7/21	2
7439954	Magnesium	50	ug/L	U	6/ 7/21	2
7439965	Manganese	2.0	ug/L	U	6/ 7/21	2
7440020	Nickel	5.0	ug/L	U	6/ 7/21	2
7440097	Potassium	700	ug/L	U	6/ 7/21	2
7782492	Selenium	50	ug/L	U	6/ 7/21	2
7440224	Silver	10	ug/L	U	6/ 7/21	2
7440235	Sodium	100	ug/L	U	6/ 7/21	2
7440280	Thallium	50	ug/L	U	6/ 7/21	2
7440622	Vanadium	5.0	ug/L	U	6/ 7/21	2
7440666	Zinc	5.0	ug/L	U	6/ 7/21	2

Sample : IS061421AL1 Lab Control Std**Information :** Lab Control Standard**Matrix :** Solid**Parameter :** ICP-AES**Fraction :** Total**Prep Method:** 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846**Analysis Method:** 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		6/15/21	1
7440360	Antimony	98	%Rec		6/15/21	1
7440382	Arsenic	99	%Rec		6/15/21	1
7440393	Barium	101	%Rec		6/15/21	1
7440417	Beryllium	94	%Rec		6/15/21	1
7440439	Cadmium	95	%Rec		6/15/21	1
7440702	Calcium	98	%Rec		6/15/21	1
7440473	Chromium	94	%Rec		6/15/21	1
7440484	Cobalt	96	%Rec		6/15/21	1
7440508	Copper	94	%Rec		6/15/21	1
7439896	Iron	103	%Rec		6/15/21	1
7439921	Lead	97	%Rec		6/15/21	1
7439954	Magnesium	99	%Rec		6/15/21	1
7439965	Manganese	91	%Rec		6/15/21	1
7440020	Nickel	96	%Rec		6/15/21	1
7440097	Potassium	98	%Rec		6/15/21	1
7782492	Selenium	99	%Rec		6/15/21	1
7440224	Silver	93	%Rec		6/15/21	1
7440235	Sodium	95	%Rec		6/15/21	1
7440280	Thallium	99	%Rec		6/15/21	1
7440622	Vanadium	97	%Rec		6/15/21	1
7440666	Zinc	97	%Rec		6/15/21	1

Sample : IW060121AL1 Lab Control Std**Information :** Lab Control Standard**Matrix :** Liquid**Parameter :** ICP/MS**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.8 - ICPMS 18 Elements**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440360	Antimony	99	%Rec		6/16/21	2
7440382	Arsenic	100	%Rec		6/16/21	2
7440439	Cadmium	99	%Rec		6/16/21	2
7440508	Copper	97	%Rec		6/16/21	2
7439921	Lead	110	%Rec		6/16/21	2

Parameter : ICP-AES**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		6/ 7/21	2
7440393	Barium	96	%Rec		6/ 7/21	2
7440417	Beryllium	98	%Rec		6/ 7/21	2
7440702	Calcium	95	%Rec		6/ 7/21	2
7440473	Chromium	94	%Rec		6/ 7/21	2
7440484	Cobalt	97	%Rec		6/ 7/21	2
7439896	Iron	97	%Rec		6/ 7/21	2
7439954	Magnesium	95	%Rec		6/ 7/21	2
7439965	Manganese	95	%Rec		6/ 7/21	2
7440020	Nickel	99	%Rec		6/ 7/21	2
7440097	Potassium	96	%Rec		6/ 7/21	2
7782492	Selenium	105	%Rec		6/ 7/21	2
7440224	Silver	91	%Rec		6/ 7/21	2
7440235	Sodium	96	%Rec		6/ 7/21	2
7440280	Thallium	102	%Rec		6/ 7/21	2
7440622	Vanadium	97	%Rec		6/ 7/21	2
7440666	Zinc	103	%Rec		6/ 7/21	2



US EPA Region 10 Laboratory

Multi-Analyte Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Sample : 21214450

Information : KRRC-SE01

Matrix : Sediment

Collected : 5/21/2021 2:30:00PM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	33	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	33	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	33	ug/kg	U	6/ 3/21	1
120127	Anthracene	33	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	33	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	52	ug/kg		6/ 3/21	
191242	Benzo(g,h,i)perylene	40	ug/kg		6/ 3/21	
205992	Benzo[b]Fluoranthene	33	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	33	ug/kg	U	6/ 3/21	1
218019	Chrysene	33	ug/kg	U	6/ 3/21	1
53703	Dibenz[a,h]anthracene	33	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	33	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	33	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	33	ug/kg	U	6/ 3/21	1
91203	Naphthalene	33	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	33	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	33	ug/kg	U	6/ 3/21	1
129000	Pyrene	33	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	102	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	95	%Rec		6/ 3/21	1
1718521	D10-Pyrene	103	%Rec		6/ 3/21	1

Sample : 21214451

Information : KRRC-SE02

Matrix : Sediment

Collected : 5/21/2021 1:15:00PM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	49	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	49	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	49	ug/kg	U	6/ 3/21	1
120127	Anthracene	49	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	49	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	49	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	49	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	49	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	49	ug/kg	U	6/ 3/21	1
218019	Chrysene	49	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	49	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	49	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	49	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	49	ug/kg	U	6/ 3/21	1
91203	Naphthalene	49	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	49	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	49	ug/kg	U	6/ 3/21	1
129000	Pyrene	49	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	99	%Rec		6/ 3/21	1
1719068	Anthracene-D10	93	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	97	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	91	%Rec		6/ 3/21	1
1718521	D10-Pyrene	98	%Rec		6/ 3/21	1

Sample : 21214452

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 10:05:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	50	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	50	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	50	ug/kg	U	6/ 3/21	1
120127	Anthracene	50	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	50	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	50	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	50	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	50	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	50	ug/kg	U	6/ 3/21	1
218019	Chrysene	50	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	50	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	50	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	50	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	50	ug/kg	U	6/ 3/21	1
91203	Naphthalene	50	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	50	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	50	ug/kg	U	6/ 3/21	1
129000	Pyrene	50	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	93	%Rec		6/ 3/21	1
1718521	D10-Pyrene	104	%Rec		6/ 3/21	1

Sample : 21214453

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	34	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	34	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	34	ug/kg	U	6/ 3/21	1
120127	Anthracene	34	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	34	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	34	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	34	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	34	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	34	ug/kg	U	6/ 3/21	1
218019	Chrysene	34	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	34	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	34	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	34	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	34	ug/kg	U	6/ 3/21	1
91203	Naphthalene	34	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	34	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	34	ug/kg	U	6/ 3/21	1
129000	Pyrene	34	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	102	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	94	%Rec		6/ 3/21	1
1718521	D10-Pyrene	105	%Rec		6/ 3/21	1

Sample : 21214454

Information : KRRC-SE05

Matrix : Sediment

Collected : 5/21/2021 8:30:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	49	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	49	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	49	ug/kg	U	6/ 3/21	1
120127	Anthracene	49	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	49	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	49	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	49	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	49	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	49	ug/kg	U	6/ 3/21	1
218019	Chrysene	49	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	49	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	49	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	49	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	49	ug/kg	U	6/ 3/21	1
91203	Naphthalene	49	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	49	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	49	ug/kg	U	6/ 3/21	1
129000	Pyrene	49	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		6/ 3/21	1
1719068	Anthracene-D10	94	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	92	%Rec		6/ 3/21	1
1718521	D10-Pyrene	100	%Rec		6/ 3/21	1

Sample : 21214455

Information : KRRC-SE06

Matrix : Sediment

Collected : 5/21/2021 12:35:00PM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	49	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	49	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	49	ug/kg	U	6/ 3/21	1
120127	Anthracene	49	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	49	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	49	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	49	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	49	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	49	ug/kg	U	6/ 3/21	1
218019	Chrysene	49	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	49	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	49	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	49	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	49	ug/kg	U	6/ 3/21	1
91203	Naphthalene	49	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	49	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	49	ug/kg	U	6/ 3/21	1
129000	Pyrene	49	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	106	%Rec		6/ 3/21	1
1719068	Anthracene-D10	97	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	96	%Rec		6/ 3/21	1
1718521	D10-Pyrene	102	%Rec		6/ 3/21	1

Sample : 21214456

Information : KRRC-SE03

Matrix : Sediment

Collected : 5/21/2021 11:30:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	50	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	50	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	50	ug/kg	U	6/ 3/21	1
120127	Anthracene	50	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	50	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	50	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	50	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	50	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	50	ug/kg	U	6/ 3/21	1
218019	Chrysene	50	ug/kg	U	6/ 3/21	1
53703	Dibenzo[a,h]anthracene	50	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	50	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	50	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	50	ug/kg	U	6/ 3/21	1
91203	Naphthalene	50	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	50	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	50	ug/kg	U	6/ 3/21	1
129000	Pyrene	50	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	104	%Rec		6/ 3/21	1
1719068	Anthracene-D10	96	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	102	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	93	%Rec		6/ 3/21	1
1718521	D10-Pyrene	105	%Rec		6/ 3/21	1

Sample : 21214453 Matrix Spike

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	96	%Rec		6/ 3/21	1
83329	Acenaphthene	95	%Rec		6/ 3/21	1
208968	Acenaphthylene	104	%Rec		6/ 3/21	1
120127	Anthracene	102	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	105	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	104	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	112	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	110	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	104	%Rec		6/ 3/21	1
218019	Chrysene	98	%Rec		6/ 3/21	1
53703	Dibenzo[a,h]anthracene	106	%Rec		6/ 3/21	1
132649	Dibenzofuran	96	%Rec		6/ 3/21	1
206440	Fluoranthene	105	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	106	%Rec		6/ 3/21	1
91203	Naphthalene	93	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	96	%Rec		6/ 3/21	1
85018	Phenanthrene	95	%Rec		6/ 3/21	1
129000	Pyrene	105	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	108	%Rec		6/ 3/21	1
1719068	Anthracene-D10	97	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	97	%Rec		6/ 3/21	1
1718521	D10-Pyrene	107	%Rec		6/ 3/21	1

Sample : 21214453 Matrix Spike#2

Information : KRRC-SE04

Matrix : Sediment

Collected : 5/21/2021 9:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	97	%Rec		6/ 3/21	1
83329	Acenaphthene	94	%Rec		6/ 3/21	1
208968	Acenaphthylene	103	%Rec		6/ 3/21	1
120127	Anthracene	101	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	103	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	100	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	108	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	114	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	92	%Rec		6/ 3/21	1
218019	Chrysene	95	%Rec		6/ 3/21	1
53703	Dibenzo[a,h]anthracene	103	%Rec		6/ 3/21	1
132649	Dibenzofuran	96	%Rec		6/ 3/21	1
206440	Fluoranthene	102	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	103	%Rec		6/ 3/21	1
91203	Naphthalene	91	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		6/ 3/21	1
85018	Phenanthrene	95	%Rec		6/ 3/21	1
129000	Pyrene	101	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		6/ 3/21	1
1719068	Anthracene-D10	96	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	102	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	98	%Rec		6/ 3/21	1
1718521	D10-Pyrene	104	%Rec		6/ 3/21	1

Sample : 105S060221B1 Blank

Information : Blank

Matrix : Solid

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	25	ug/kg	U	6/ 3/21	1
83329	Acenaphthene	25	ug/kg	U	6/ 3/21	1
208968	Acenaphthylene	25	ug/kg	U	6/ 3/21	1
120127	Anthracene	25	ug/kg	U	6/ 3/21	1
56553	Benzo(a)anthracene	25	ug/kg	U	6/ 3/21	1
50328	Benzo(a)pyrene	25	ug/kg	U	6/ 3/21	1
191242	Benzo(g,h,i)perylene	25	ug/kg	U	6/ 3/21	1
205992	Benzo[b]Fluoranthene	25	ug/kg	U	6/ 3/21	1
207089	Benzo[k]fluoranthene	25	ug/kg	U	6/ 3/21	1
218019	Chrysene	25	ug/kg	U	6/ 3/21	1
53703	Dibenz[a,h]anthracene	25	ug/kg	U	6/ 3/21	1
132649	Dibenzofuran	25	ug/kg	U	6/ 3/21	1
206440	Fluoranthene	25	ug/kg	U	6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	25	ug/kg	U	6/ 3/21	1
91203	Naphthalene	25	ug/kg	U	6/ 3/21	1
91576	Naphthalene, 2-methyl-	25	ug/kg	U	6/ 3/21	1
85018	Phenanthrene	25	ug/kg	U	6/ 3/21	1
129000	Pyrene	25	ug/kg	U	6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		6/ 3/21	1
1719068	Anthracene-D10	93	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	95	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	96	%Rec		6/ 3/21	1
1718521	D10-Pyrene	108	%Rec		6/ 3/21	1

Sample : 105S060221L1 Lab Control Std**Information :** Lab Control Standard**Matrix :** Solid**Parameter :** PAH**Prep Method:** 3541 - Automated soxhlet extraction**Analysis Method:** 8270E - Semivolatiles by GC/MS**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	96	%Rec		6/ 3/21	1
83329	Acenaphthene	94	%Rec		6/ 3/21	1
208968	Acenaphthylene	99	%Rec		6/ 3/21	1
120127	Anthracene	100	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	101	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	99	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	105	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	99	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	104	%Rec		6/ 3/21	1
218019	Chrysene	94	%Rec		6/ 3/21	1
53703	Dibenz[a,h]anthracene	97	%Rec		6/ 3/21	1
132649	Dibenzofuran	95	%Rec		6/ 3/21	1
206440	Fluoranthene	106	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	98	%Rec		6/ 3/21	1
91203	Naphthalene	92	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		6/ 3/21	1
85018	Phenanthrene	93	%Rec		6/ 3/21	1
129000	Pyrene	100	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	102	%Rec		6/ 3/21	1
1719068	Anthracene-D10	94	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	99	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	97	%Rec		6/ 3/21	1
1718521	D10-Pyrene	99	%Rec		6/ 3/21	1

Sample : 105S060221L2 Lab Control Std#2**Information :** Lab Control Standard Dup.**Matrix :** Solid**Parameter :** PAH**Prep Method:** 3541 - Automated soxhlet extraction**Analysis Method:** 8270E - Semivolatiles by GC/MS**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	97	%Rec		6/ 3/21	1
83329	Acenaphthene	92	%Rec		6/ 3/21	1
208968	Acenaphthylene	102	%Rec		6/ 3/21	1
120127	Anthracene	98	%Rec		6/ 3/21	1
56553	Benzo(a)anthracene	101	%Rec		6/ 3/21	1
50328	Benzo(a)pyrene	98	%Rec		6/ 3/21	1
191242	Benzo(g,h,i)perylene	105	%Rec		6/ 3/21	1
205992	Benzo[b]Fluoranthene	99	%Rec		6/ 3/21	1
207089	Benzo[k]fluoranthene	96	%Rec		6/ 3/21	1
218019	Chrysene	92	%Rec		6/ 3/21	1
53703	Dibenz[a,h]anthracene	96	%Rec		6/ 3/21	1
132649	Dibenzofuran	94	%Rec		6/ 3/21	1
206440	Fluoranthene	101	%Rec		6/ 3/21	1
193395	Indeno(1,2,3-cd)pyrene	96	%Rec		6/ 3/21	1
91203	Naphthalene	91	%Rec		6/ 3/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		6/ 3/21	1
85018	Phenanthrene	92	%Rec		6/ 3/21	1
129000	Pyrene	98	%Rec		6/ 3/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	106	%Rec		6/ 3/21	1
1719068	Anthracene-D10	95	%Rec		6/ 3/21	1
63466717	Benzo[a]pyrene-D12	99	%Rec		6/ 3/21	1
81103799	D10-Fluorene (SS)	99	%Rec		6/ 3/21	1
1718521	D10-Pyrene	100	%Rec		6/ 3/21	1



US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174A

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2021T10P000FD210ZZLA00

Parameter(s): Hg

Analyte: 7439976 - Mercury

Weight Basis : N/A

Prep Method(s): 245.1 - Cold vapor mercury in water

Analytical Method: 245.1 - Cold vapor mercury in water (CVAAS)

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214459 sam	KRRC-SW02	Water	0.050	ug/L	U	5/27/21	1
21214460 sam	KRRC-SW02	Filtered	0.050	ug/L	U	5/27/21	1
21214461 sam	KRRC-SW03	Water	0.050	ug/L	U	5/27/21	1
21214462 sam	KRRC-SW03	Filtered	0.050	ug/L	U	5/27/21	1
21214463 sam	KRRC-SW04	Water	0.050	ug/L	U	5/27/21	1
21214464 sam	KRRC-SW04	Filtered	0.050	ug/L	U	5/27/21	1
21214465 sam	KRRC-SW05	Water	0.050	ug/L	U	5/27/21	1
21214466 sam	KRRC-SW05	Filtered	0.050	ug/L	U	5/27/21	1
21214467 sam	KRRC-SW06	Water	0.0512	ug/L		5/27/21	1
21214468 sam	KRRC-SW06	Filtered	0.050	ug/L	U	5/27/21	1
21214469 sam	KRRC-SW04	Water	0.050	ug/L	U	5/27/21	1
21214470 sam	KRRC-SW04	Filtered	0.050	ug/L	U	5/27/21	1
21214461 du	KRRC-SW03	Water	0.050	ug/L	U	5/27/21	1
21214462 du	KRRC-SW03	Filtered	0.050	ug/L	U	5/27/21	1
IW052621ABL blk	Blank	Liquid	0.050	ug/L	U	5/27/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214461 ms	KRRC-SW03	Water	105	%Rec		5/27/21	1
21214462 ms	KRRC-SW03	Filtered	99	%Rec		5/27/21	1
21214461 msd	KRRC-SW03	Water	105	%Rec		5/27/21	1
21214462 msd	KRRC-SW03	Filtered	101	%Rec		5/27/21	1
IW052621AL1 lcs	Lab Control Standard	Liquid	98	%Rec		5/27/21	1

Analyte: 7439976 - Mercury

Weight Basis : Dry

Prep Method(s): 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Analytical Method: 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Target Analyte Results:

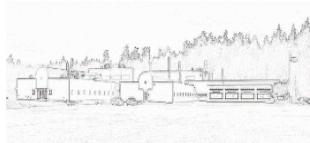
Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214450 sam	KRRC-SE01	Sediment	0.0515	mg/Kg		5/25/21	1

Target Analyte Results (cont.):

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214451 sam	KRRC-SE02	Sediment	0.0532	mg/Kg		5/25/21	1
21214452 sam	KRRC-SE03	Sediment	0.0822	mg/Kg		5/25/21	1
21214453 sam	KRRC-SE04	Sediment	0.0278	mg/Kg		5/25/21	1
21214454 sam	KRRC-SE05	Sediment	0.0335	mg/Kg		5/25/21	1
21214455 sam	KRRC-SE06	Sediment	0.0380	mg/Kg		5/25/21	1
21214456 sam	KRRC-SE03	Sediment	0.0822	mg/Kg		5/25/21	1
21214453 du	KRRC-SE04	Sediment	0.0230	mg/Kg		5/25/21	1
IS052421ABL blk	Blank	Solid	0.010	mg/Kg	U	5/25/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21214453 ms	KRRC-SE04	Sediment	92	%Rec		5/25/21	1
21214453 msd	KRRC-SE04	Sediment	95	%Rec		5/25/21	1
IS052421ACO std	Control	Solid	100	%Rec		5/25/21	40
IS052421AL1 lcs	Lab Control Standard	Solid	97	%Rec		5/25/21	1



US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Parameter(s): Hardness

Analyte: *90080 - Hardness as CaCO₃

Weight Basis : N/A

Prep Method(s): 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

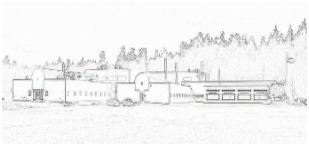
Analytical Method: SM2340B - Hardness by Calculation, Standard Methods

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464459 sam	KRRC-SW01	Water	5.58	mg/L		12/6/21	2
21464461 sam	KRRC-SW03	Water	13.3	mg/L		12/6/21	2
21464463 sam	KRRC-SW04	Water	16.7	mg/L		12/6/21	2
21464465 sam	KRRC-SW05	Water	17.9	mg/L		12/6/21	2
21464467 sam	KRRC-SW03	Water	12.8	mg/L		12/6/21	2
21464469 sam	KRRC-SW02-1	Water	7.47	mg/L		12/6/21	2
21464471 sam	KRRC-SW06-1	Water	3.17	mg/L		12/6/21	2
21464465 du	KRRC-SW05	Water	17.6	mg/L		12/6/21	2
IW112221ABL blk	Blank	Liquid	0.30	mg/L	U	12/6/21	2

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464465 ms	KRRC-SW05	Water	96	%Rec		12/6/21	2
21464465 msd	KRRC-SW05	Water	108	%Rec		12/6/21	2
IW112221AL1 lcs	Lab Control Standard	Liquid	101	%Rec		12/6/21	2



US EPA Region 10 Laboratory



Multi-Analyte Final Report

Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Sample : 21464450

Information : KRRC-SE01

Matrix : Sediment

Collected : 11/12/2021 6:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	13400	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.8	mg/Kg		12/14/21	1
7440393	Barium	68.3	mg/Kg		12/14/21	1
7440417	Beryllium	0.26	mg/Kg		12/14/21	1
7440439	Cadmium	0.22	mg/Kg		12/14/21	1
7440702	Calcium	4160	mg/Kg		12/14/21	1
7440473	Chromium	27.0	mg/Kg		12/14/21	1
7440484	Cobalt	7.92	mg/Kg		12/14/21	1
7440508	Copper	22.6	mg/Kg		12/14/21	1
7439896	Iron	14600	mg/Kg		12/14/21	1
7439921	Lead	68.2	mg/Kg		12/14/21	1
7439954	Magnesium	4070	mg/Kg		12/14/21	1
7439965	Manganese	380	mg/Kg		12/14/21	1
7440020	Nickel	35.0	mg/Kg		12/14/21	1
7440097	Potassium	320	mg/Kg		12/14/21	1
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	1.0	mg/Kg	U	12/14/21	1
7440235	Sodium	117	mg/Kg		12/14/21	1
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	43.0	mg/Kg		12/14/21	1
7440666	Zinc	53.8	mg/Kg		12/14/21	1

Sample : 21464451

Information : KRRC-SE02

Matrix : Sediment

Collected : 11/12/2021 10:30:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10700	mg/Kg		12/14/21	5
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	3.9	mg/Kg		12/14/21	1
7440393	Barium	43.7	mg/Kg		12/14/21	5
7440417	Beryllium	0.944	mg/Kg		12/14/21	1
7440439	Cadmium	0.99	mg/Kg	U	12/14/21	5
7440702	Calcium	8570	mg/Kg		12/14/21	5
7440473	Chromium	11.5	mg/Kg		12/14/21	1
7440484	Cobalt	2.4	mg/Kg		12/14/21	1
7440508	Copper	10.9	mg/Kg		12/14/21	1
7439896	Iron	3780	mg/Kg		12/14/21	5
7439921	Lead	106	mg/Kg		12/14/21	1
7439954	Magnesium	1560	mg/Kg		12/14/21	5
7439965	Manganese	129	mg/Kg		12/14/21	1
7440020	Nickel	16.5	mg/Kg		12/14/21	5
7440097	Potassium	350	mg/Kg	U	12/14/21	5
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	0.99	mg/Kg	U	12/14/21	1
7440235	Sodium	71	mg/Kg		12/14/21	5
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	14.3	mg/Kg		12/14/21	1
7440666	Zinc	22.7	mg/Kg		12/14/21	5

Sample : 21464452

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:35:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	12600	mg/Kg		12/14/21	1
7440360	Antimony	1.8	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.3	mg/Kg	U	12/14/21	1
7440393	Barium	37.0	mg/Kg		12/14/21	1
7440417	Beryllium	0.24	mg/Kg		12/14/21	1
7440439	Cadmium	0.19	mg/Kg		12/14/21	1
7440702	Calcium	5290	mg/Kg		12/14/21	1
7440473	Chromium	29.4	mg/Kg		12/14/21	1
7440484	Cobalt	7.77	mg/Kg		12/14/21	1
7440508	Copper	21.0	mg/Kg		12/14/21	1
7439896	Iron	15400	mg/Kg		12/14/21	1
7439921	Lead	21.3	mg/Kg		12/14/21	1
7439954	Magnesium	5020	mg/Kg		12/14/21	1
7439965	Manganese	487	mg/Kg		12/14/21	1
7440020	Nickel	28.1	mg/Kg		12/14/21	1
7440097	Potassium	321	mg/Kg		12/14/21	1
7782492	Selenium	4.6	mg/Kg	U	12/14/21	1
7440224	Silver	0.91	mg/Kg	U	12/14/21	1
7440235	Sodium	191	mg/Kg		12/14/21	1
7440280	Thallium	4.6	mg/Kg	U	12/14/21	1
7440622	Vanadium	43.3	mg/Kg		12/14/21	1
7440666	Zinc	33.4	mg/Kg		12/14/21	1

Sample : 21464453

Information : KRRC-SE04

Matrix : Sediment

Collected : 11/12/2021 8:04:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	15800	mg/Kg		12/14/21	5
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.4	mg/Kg	U	12/14/21	1
7440393	Barium	61.3	mg/Kg		12/14/21	1
7440417	Beryllium	0.43	mg/Kg		12/14/21	1
7440439	Cadmium	0.20	mg/Kg	U	12/14/21	1
7440702	Calcium	2910	mg/Kg		12/14/21	5
7440473	Chromium	30.2	mg/Kg		12/14/21	1
7440484	Cobalt	8.80	mg/Kg		12/14/21	1
7440508	Copper	8.17	mg/Kg		12/14/21	1
7439896	Iron	17100	mg/Kg		12/14/21	5
7439921	Lead	2.9	mg/Kg		12/14/21	1
7439954	Magnesium	3410	mg/Kg		12/14/21	5
7439965	Manganese	1500	mg/Kg		12/14/21	1
7440020	Nickel	20.1	mg/Kg		12/14/21	1
7440097	Potassium	340	mg/Kg	U	12/14/21	5
7782492	Selenium	4.9	mg/Kg	U	12/14/21	1
7440224	Silver	0.98	mg/Kg	U	12/14/21	1
7440235	Sodium	67	mg/Kg		12/14/21	5
7440280	Thallium	4.9	mg/Kg	U	12/14/21	1
7440622	Vanadium	55.2	mg/Kg		12/14/21	1
7440666	Zinc	21.9	mg/Kg		12/14/21	1

Sample : 21464454

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10500	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	45.5	mg/Kg		12/14/21	1
7440417	Beryllium	0.23	mg/Kg		12/14/21	1
7440439	Cadmium	0.21	mg/Kg		12/14/21	1
7440702	Calcium	3750	mg/Kg		12/14/21	1
7440473	Chromium	22.8	mg/Kg		12/14/21	1
7440484	Cobalt	4.40	mg/Kg		12/14/21	1
7440508	Copper	10.7	mg/Kg		12/14/21	1
7439896	Iron	9860	mg/Kg		12/14/21	1
7439921	Lead	37.9	mg/Kg		12/14/21	1
7439954	Magnesium	2900	mg/Kg		12/14/21	1
7439965	Manganese	200	mg/Kg		12/14/21	1
7440020	Nickel	21.5	mg/Kg		12/14/21	1
7440097	Potassium	170	mg/Kg		12/14/21	1
7782492	Selenium	4.9	mg/Kg	U	12/14/21	1
7440224	Silver	0.98	mg/Kg	U	12/14/21	1
7440235	Sodium	76.4	mg/Kg		12/14/21	1
7440280	Thallium	4.9	mg/Kg	U	12/14/21	1
7440622	Vanadium	34.4	mg/Kg		12/14/21	1
7440666	Zinc	32.1	mg/Kg		12/14/21	1

Sample : 21464455

Information : KRRC-SE06

Matrix : Sediment

Collected : 11/12/2021 10:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	4860	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	75.9	mg/Kg		12/14/21	1
7440417	Beryllium	0.30	mg/Kg		12/14/21	1
7440439	Cadmium	0.41	mg/Kg		12/14/21	1
7440702	Calcium	10400	mg/Kg		12/14/21	1
7440473	Chromium	8.19	mg/Kg		12/14/21	1
7440484	Cobalt	2.4	mg/Kg		12/14/21	1
7440508	Copper	10.6	mg/Kg		12/14/21	1
7439896	Iron	3340	mg/Kg		12/14/21	1
7439921	Lead	47.2	mg/Kg		12/14/21	1
7439954	Magnesium	1410	mg/Kg		12/14/21	1
7439965	Manganese	134	mg/Kg		12/14/21	1
7440020	Nickel	12.1	mg/Kg		12/14/21	1
7440097	Potassium	220	mg/Kg		12/14/21	1
7782492	Selenium	4.9	mg/Kg	U	12/14/21	1
7440224	Silver	0.99	mg/Kg	U	12/14/21	1
7440235	Sodium	64.2	mg/Kg		12/14/21	1
7440280	Thallium	4.9	mg/Kg	U	12/14/21	1
7440622	Vanadium	16.3	mg/Kg		12/14/21	1
7440666	Zinc	31.0	mg/Kg		12/14/21	1

Sample : 21464456

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	18000	mg/Kg		12/14/21	5
7440360	Antimony	1.9	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.8	mg/Kg		12/14/21	1
7440393	Barium	63.8	mg/Kg		12/14/21	1
7440417	Beryllium	0.45	mg/Kg		12/14/21	1
7440439	Cadmium	0.25	mg/Kg		12/14/21	1
7440702	Calcium	4520	mg/Kg		12/14/21	5
7440473	Chromium	26.2	mg/Kg		12/14/21	1
7440484	Cobalt	8.48	mg/Kg		12/14/21	1
7440508	Copper	18.6	mg/Kg		12/14/21	1
7439896	Iron	12100	mg/Kg		12/14/21	5
7439921	Lead	60.1	mg/Kg		12/14/21	1
7439954	Magnesium	2760	mg/Kg		12/14/21	5
7439965	Manganese	1120	mg/Kg		12/14/21	1
7440020	Nickel	21.6	mg/Kg		12/14/21	1
7440097	Potassium	330	mg/Kg	U	12/14/21	5
7782492	Selenium	4.7	mg/Kg	U	12/14/21	1
7440224	Silver	0.95	mg/Kg	U	12/14/21	1
7440235	Sodium	130	mg/Kg		12/14/21	5
7440280	Thallium	4.7	mg/Kg	U	12/14/21	1
7440622	Vanadium	37.6	mg/Kg		12/14/21	1
7440666	Zinc	41.7	mg/Kg		12/14/21	1

Sample : 21464457

Information : KRRC-SE02-1

Matrix : Sediment

Collected : 11/12/2021 10:40:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	2680	mg/Kg		12/14/21	1
7440360	Antimony	1.9	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.4	mg/Kg	U	12/14/21	1
7440393	Barium	91.4	mg/Kg		12/14/21	1
7440417	Beryllium	0.097	mg/Kg	U	12/14/21	1
7440439	Cadmium	1.27	mg/Kg		12/14/21	1
7440702	Calcium	14300	mg/Kg		12/14/21	1
7440473	Chromium	4.40	mg/Kg		12/14/21	1
7440484	Cobalt	1.6	mg/Kg		12/14/21	1
7440508	Copper	10.4	mg/Kg		12/14/21	1
7439896	Iron	2640	mg/Kg		12/14/21	1
7439921	Lead	25.1	mg/Kg		12/14/21	1
7439954	Magnesium	1670	mg/Kg		12/14/21	1
7439965	Manganese	195	mg/Kg		12/14/21	1
7440020	Nickel	5.92	mg/Kg		12/14/21	1
7440097	Potassium	290	mg/Kg		12/14/21	1
7782492	Selenium	4.8	mg/Kg	U	12/14/21	1
7440224	Silver	0.97	mg/Kg	U	12/14/21	1
7440235	Sodium	81.8	mg/Kg		12/14/21	1
7440280	Thallium	4.8	mg/Kg	U	12/14/21	1
7440622	Vanadium	8.79	mg/Kg		12/14/21	1
7440666	Zinc	107	mg/Kg		12/14/21	1

Sample : 21464458

Information : KRRC-SE06-1

Matrix : Sediment

Collected : 11/12/2021 11:12:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	9660	mg/Kg		12/14/21	1
7440360	Antimony	2.0	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	56.8	mg/Kg		12/14/21	1
7440417	Beryllium	0.18	mg/Kg		12/14/21	1
7440439	Cadmium	0.27	mg/Kg		12/14/21	1
7440702	Calcium	4580	mg/Kg		12/14/21	1
7440473	Chromium	27.0	mg/Kg		12/14/21	1
7440484	Cobalt	4.06	mg/Kg		12/14/21	1
7440508	Copper	8.84	mg/Kg		12/14/21	1
7439896	Iron	9950	mg/Kg		12/14/21	1
7439921	Lead	13.9	mg/Kg		12/14/21	1
7439954	Magnesium	14800	mg/Kg		12/14/21	1
7439965	Manganese	163	mg/Kg		12/14/21	1
7440020	Nickel	59.0	mg/Kg		12/14/21	1
7440097	Potassium	330	mg/Kg		12/14/21	1
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	0.99	mg/Kg	U	12/14/21	1
7440235	Sodium	126	mg/Kg		12/14/21	1
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	23.9	mg/Kg		12/14/21	1
7440666	Zinc	16.9	mg/Kg		12/14/21	1

Sample : 21464459

Information : KRRC-SW01

Matrix : Water

Collected : 11/12/2021 6:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	146	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1190	ug/L		12/ 6/21	2
7440508	Copper	1.41	ug/L		12/ 6/21	2
7439896	Iron	33.8	ug/L		12/ 6/21	2
7439921	Lead	0.299	ug/L		12/ 6/21	2
7439954	Magnesium	634	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	7.00	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	3.0	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1880	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	6.7	ug/L		11/23/21	2

Sample : 21464460

Information : KRRC-SW01

Matrix : Filtered

Collected : 11/12/2021 6:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	130	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1200	ug/L		12/ 6/21	2
7440508	Copper	1.42	ug/L		12/ 6/21	2
7439896	Iron	25.1	ug/L		12/ 6/21	2
7439921	Lead	0.272	ug/L		12/ 6/21	2
7439954	Magnesium	612	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.86	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	3.3	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1900	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	9.7	ug/L		11/23/21	2

Sample : 21464461

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:35:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	945	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.21	ug/L		12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3160	ug/L		12/ 6/21	2
7440508	Copper	2.06	ug/L		12/ 6/21	2
7439896	Iron	574	ug/L		12/ 6/21	2
7439921	Lead	3.35	ug/L		12/ 6/21	2
7439954	Magnesium	1300	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	12.1	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	119	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1100	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1880	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	6.9	ug/L		11/23/21	2

Sample : 21464462

Information : KRRC-SW03

Matrix : Filtered

Collected : 11/12/2021 8:35:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	80.9	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	2860	ug/L		12/ 6/21	2
7440508	Copper	0.99	ug/L		12/ 6/21	2
7439896	Iron	42.1	ug/L		12/ 6/21	2
7439921	Lead	0.24	ug/L		12/ 6/21	2
7439954	Magnesium	1140	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.03	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	44.7	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1100	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1840	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464463

Information : KRRC-SW04

Matrix : Water

Collected : 11/12/2021 8:04:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	183	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4010	ug/L		12/ 6/21	2
7440508	Copper	0.82	ug/L		12/ 6/21	2
7439896	Iron	70.5	ug/L		12/ 6/21	2
7439921	Lead	0.510	ug/L		12/ 6/21	2
7439954	Magnesium	1630	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	9.31	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	23.9	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	800	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2100	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464464

Information : KRRC-SW04

Matrix : Filtered

Collected : 11/12/2021 8:04:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	158	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3990	ug/L		12/ 6/21	2
7440508	Copper	0.89	ug/L		12/ 6/21	2
7439896	Iron	58.2	ug/L		12/ 6/21	2
7439921	Lead	0.435	ug/L		12/ 6/21	2
7439954	Magnesium	1640	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	9.27	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	23.7	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	800	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2160	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.5	ug/L		11/23/21	2

Sample : 21464465

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	118	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4510	ug/L		12/ 6/21	2
7440508	Copper	0.49	ug/L		12/ 6/21	2
7439896	Iron	129	ug/L		12/ 6/21	2
7439921	Lead	0.522	ug/L		12/ 6/21	2
7439954	Magnesium	1620	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.48	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	58.2	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2670	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464466

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	88.6	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4410	ug/L		12/ 6/21	2
7440508	Copper	0.62	ug/L		12/ 6/21	2
7439896	Iron	98.9	ug/L		12/ 6/21	2
7439921	Lead	0.365	ug/L		12/ 6/21	2
7439954	Magnesium	1610	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.22	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	50.2	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2660	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464467

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	508	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3070	ug/L		12/ 6/21	2
7440508	Copper	1.69	ug/L		12/ 6/21	2
7439896	Iron	368	ug/L		12/ 6/21	2
7439921	Lead	1.37	ug/L		12/ 6/21	2
7439954	Magnesium	1240	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	9.57	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	69.9	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1100	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1820	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.4	ug/L		11/23/21	2

Sample : 21464468

Information : KRRC-SW03

Matrix : Filtered

Collected : 11/12/2021 8:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	97.5	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	3010	ug/L		12/ 6/21	2
7440508	Copper	0.92	ug/L		12/ 6/21	2
7439896	Iron	53.8	ug/L		12/ 6/21	2
7439921	Lead	0.25	ug/L		12/ 6/21	2
7439954	Magnesium	1190	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.32	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	47.7	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	1000	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1830	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464469

Information : KRRC-SW02-1

Matrix : Water

Collected : 11/12/2021 10:40:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	91.2	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.22	ug/L		12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1740	ug/L		12/ 6/21	2
7440508	Copper	0.49	ug/L		12/ 6/21	2
7439896	Iron	81.8	ug/L		12/ 6/21	2
7439921	Lead	0.810	ug/L		12/ 6/21	2
7439954	Magnesium	761	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	4.4	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	32.2	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	920	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1200	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.8	ug/L		11/23/21	2

Sample : 21464470

Information : KRRC-SW02-1

Matrix : Filtered

Collected : 11/12/2021 10:40:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	38	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L		12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	1600	ug/L		12/ 6/21	2
7440508	Copper	0.42	ug/L		12/ 6/21	2
7439896	Iron	49.2	ug/L		12/ 6/21	2
7439921	Lead	0.253	ug/L		12/ 6/21	2
7439954	Magnesium	731	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	2.9	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	28.1	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	910	ug/L		11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1190	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	7.3	ug/L		11/23/21	2

Sample : 21464471

Information : KRRC-SW06-1

Matrix : Water

Collected : 11/12/2021 11:12:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	34	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	647	ug/L		12/ 6/21	2
7440508	Copper	0.37	ug/L		12/ 6/21	2
7439896	Iron	23	ug/L		12/ 6/21	2
7439921	Lead	0.099	ug/L		12/ 6/21	2
7439954	Magnesium	376	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	3.5	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	14.9	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	968	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.3	ug/L		11/23/21	2

Sample : 21464472

Information : KRRC-SW06-1

Matrix : Filtered

Collected : 11/12/2021 11:12:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	38	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	779	ug/L		12/ 6/21	2
7440508	Copper	0.83	ug/L		12/ 6/21	2
7439896	Iron	20	ug/L		12/ 6/21	2
7439921	Lead	0.11	ug/L		12/ 6/21	2
7439954	Magnesium	395	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	3.5	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	11.6	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	1080	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464454 Sample Duplicate

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10400	mg/Kg		12/14/21	1
7440360	Antimony	1.9	mg/Kg	UJ	12/14/21	1
7440382	Arsenic	2.4	mg/Kg	U	12/14/21	1
7440393	Barium	44.1	mg/Kg		12/14/21	1
7440417	Beryllium	0.22	mg/Kg		12/14/21	1
7440439	Cadmium	0.20	mg/Kg		12/14/21	1
7440702	Calcium	3880	mg/Kg		12/14/21	1
7440473	Chromium	26.4	mg/Kg		12/14/21	1
7440484	Cobalt	4.29	mg/Kg		12/14/21	1
7440508	Copper	10.4	mg/Kg		12/14/21	1
7439896	Iron	9630	mg/Kg		12/14/21	1
7439921	Lead	37.6	mg/Kg		12/14/21	1
7439954	Magnesium	2860	mg/Kg		12/14/21	1
7439965	Manganese	195	mg/Kg		12/14/21	1
7440020	Nickel	21.1	mg/Kg		12/14/21	1
7440097	Potassium	160	mg/Kg		12/14/21	1
7782492	Selenium	4.8	mg/Kg	U	12/14/21	1
7440224	Silver	0.96	mg/Kg	U	12/14/21	1
7440235	Sodium	72.2	mg/Kg		12/14/21	1
7440280	Thallium	4.8	mg/Kg	U	12/14/21	1
7440622	Vanadium	34.0	mg/Kg		12/14/21	1
7440666	Zinc	31.0	mg/Kg		12/14/21	1

Sample : 21464465 Sample Duplicate

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	118	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4380	ug/L		12/ 6/21	2
7440508	Copper	0.50	ug/L		12/ 6/21	2
7439896	Iron	126	ug/L		12/ 6/21	2
7439921	Lead	0.522	ug/L		12/ 6/21	2
7439954	Magnesium	1630	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.56	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	59.1	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2670	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464466 Sample Duplicate

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	92.2	ug/L		12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	4400	ug/L		12/ 6/21	2
7440508	Copper	0.60	ug/L		12/ 6/21	2
7439896	Iron	100	ug/L		12/ 6/21	2
7439921	Lead	0.371	ug/L		12/ 6/21	2
7439954	Magnesium	1670	ug/L		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	6.26	ug/L		11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	50.3	ug/L		11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	2640	ug/L		11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : 21464454 Matrix Spike

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	12/14/21	1
7440360	Antimony	43	%Rec		12/14/21	1
7440382	Arsenic	101	%Rec		12/14/21	1
7440393	Barium	95	%Rec		12/14/21	1
7440417	Beryllium	96	%Rec		12/14/21	1
7440439	Cadmium	89	%Rec		12/14/21	1
7440702	Calcium	115	%Rec		12/14/21	1
7440473	Chromium	107	%Rec		12/14/21	1
7440484	Cobalt	90	%Rec		12/14/21	1
7440508	Copper	100	%Rec		12/14/21	1
7439896	Iron			NA	12/14/21	1
7439921	Lead	93	%Rec		12/14/21	1
7439954	Magnesium	98	%Rec		12/14/21	1
7439965	Manganese	111	%Rec		12/14/21	1
7440020	Nickel	88	%Rec		12/14/21	1
7440097	Potassium	90	%Rec		12/14/21	1
7782492	Selenium	98	%Rec		12/14/21	1
7440224	Silver	97	%Rec		12/14/21	1
7440235	Sodium	91	%Rec		12/14/21	1
7440280	Thallium	97	%Rec		12/14/21	1
7440622	Vanadium	99	%Rec		12/14/21	1
7440666	Zinc	91	%Rec		12/14/21	1

Sample : 21464465 Matrix Spike

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		12/ 6/21	2
7440360	Antimony	97	%Rec		12/ 6/21	2
7440382	Arsenic	103	%Rec		12/ 6/21	2
7440439	Cadmium	94	%Rec		12/ 6/21	2
7440702	Calcium	87	%Rec		12/ 6/21	2
7440508	Copper	96	%Rec		12/ 6/21	2
7439896	Iron	103	%Rec		12/ 6/21	2
7439921	Lead	101	%Rec		12/ 6/21	2
7439954	Magnesium	101	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	102	%Rec		11/23/21	2
7440417	Beryllium	103	%Rec		11/23/21	2
7440473	Chromium	101	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	101	%Rec		11/23/21	2
7440020	Nickel	99	%Rec		11/23/21	2
7440097	Potassium	104	%Rec		11/23/21	2
7782492	Selenium	104	%Rec		11/23/21	2
7440224	Silver	96	%Rec		11/23/21	2
7440235	Sodium	100	%Rec		11/23/21	2
7440280	Thallium	102	%Rec		11/23/21	2
7440622	Vanadium	104	%Rec		11/23/21	2
7440666	Zinc	101	%Rec		11/23/21	2

Sample : 21464466 Matrix Spike

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	102	%Rec		12/ 6/21	2
7440360	Antimony	98	%Rec		12/ 6/21	2
7440382	Arsenic	102	%Rec		12/ 6/21	2
7440439	Cadmium	97	%Rec		12/ 6/21	2
7440702	Calcium	102	%Rec		12/ 6/21	2
7440508	Copper	97	%Rec		12/ 6/21	2
7439896	Iron	105	%Rec		12/ 6/21	2
7439921	Lead	100	%Rec		12/ 6/21	2
7439954	Magnesium	115	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	104	%Rec		11/23/21	2
7440417	Beryllium	103	%Rec		11/23/21	2
7440473	Chromium	104	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	102	%Rec		11/23/21	2
7440020	Nickel	100	%Rec		11/23/21	2
7440097	Potassium	106	%Rec		11/23/21	2
7782492	Selenium	105	%Rec		11/23/21	2
7440224	Silver	99	%Rec		11/23/21	2
7440235	Sodium	100	%Rec		11/23/21	2
7440280	Thallium	103	%Rec		11/23/21	2
7440622	Vanadium	106	%Rec		11/23/21	2
7440666	Zinc	102	%Rec		11/23/21	2

Sample : 21464454 Matrix Spike#2

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum			NA	12/14/21	1
7440360	Antimony	43	%Rec		12/14/21	1
7440382	Arsenic	103	%Rec		12/14/21	1
7440393	Barium	98	%Rec		12/14/21	1
7440417	Beryllium	97	%Rec		12/14/21	1
7440439	Cadmium	90	%Rec		12/14/21	1
7440702	Calcium	119	%Rec		12/14/21	1
7440473	Chromium	103	%Rec		12/14/21	1
7440484	Cobalt	93	%Rec		12/14/21	1
7440508	Copper	102	%Rec		12/14/21	1
7439896	Iron			NA	12/14/21	1
7439921	Lead	96	%Rec		12/14/21	1
7439954	Magnesium	96	%Rec		12/14/21	1
7439965	Manganese	119	%Rec		12/14/21	1
7440020	Nickel	89	%Rec		12/14/21	1
7440097	Potassium	92	%Rec		12/14/21	1
7782492	Selenium	98	%Rec		12/14/21	1
7440224	Silver	98	%Rec		12/14/21	1
7440235	Sodium	92	%Rec		12/14/21	1
7440280	Thallium	98	%Rec		12/14/21	1
7440622	Vanadium	99	%Rec		12/14/21	1
7440666	Zinc	94	%Rec		12/14/21	1

Sample : 21464465 Matrix Spike#2

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	104	%Rec		12/ 6/21	2
7440360	Antimony	99	%Rec		12/ 6/21	2
7440382	Arsenic	102	%Rec		12/ 6/21	2
7440439	Cadmium	96	%Rec		12/ 6/21	2
7440702	Calcium	105	%Rec		12/ 6/21	2
7440508	Copper	99	%Rec		12/ 6/21	2
7439896	Iron	105	%Rec		12/ 6/21	2
7439921	Lead	100	%Rec		12/ 6/21	2
7439954	Magnesium	110	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Total

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	104	%Rec		11/23/21	2
7440417	Beryllium	104	%Rec		11/23/21	2
7440473	Chromium	103	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	102	%Rec		11/23/21	2
7440020	Nickel	99	%Rec		11/23/21	2
7440097	Potassium	105	%Rec		11/23/21	2
7782492	Selenium	104	%Rec		11/23/21	2
7440224	Silver	97	%Rec		11/23/21	2
7440235	Sodium	101	%Rec		11/23/21	2
7440280	Thallium	102	%Rec		11/23/21	2
7440622	Vanadium	105	%Rec		11/23/21	2
7440666	Zinc	101	%Rec		11/23/21	2

Sample : 21464466 Matrix Spike#2

Information : KRRC-SW05

Matrix : Filtered

Collected : 11/12/2021 8:00:00AM

Parameter : ICP/MS

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.8 - ICPMS 18 Elements

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	103	%Rec		12/ 6/21	2
7440360	Antimony	98	%Rec		12/ 6/21	2
7440382	Arsenic	102	%Rec		12/ 6/21	2
7440439	Cadmium	95	%Rec		12/ 6/21	2
7440702	Calcium	110	%Rec		12/ 6/21	2
7440508	Copper	97	%Rec		12/ 6/21	2
7439896	Iron	106	%Rec		12/ 6/21	2
7439921	Lead	101	%Rec		12/ 6/21	2
7439954	Magnesium	117	%Rec		12/ 6/21	2

Parameter : ICP-AES

Fraction : Dissolved

Prep Method: 200.2 - Metals, total recoverable, water, soil, EMSL-CIN

Analysis Method: 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)

Weight Basis : N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	102	%Rec		11/23/21	2
7440417	Beryllium	102	%Rec		11/23/21	2
7440473	Chromium	103	%Rec		11/23/21	2
7440484	Cobalt	93	%Rec		11/23/21	2
7439965	Manganese	101	%Rec		11/23/21	2
7440020	Nickel	98	%Rec		11/23/21	2
7440097	Potassium	105	%Rec		11/23/21	2
7782492	Selenium	103	%Rec		11/23/21	2
7440224	Silver	98	%Rec		11/23/21	2
7440235	Sodium	98	%Rec		11/23/21	2
7440280	Thallium	101	%Rec		11/23/21	2
7440622	Vanadium	106	%Rec		11/23/21	2
7440666	Zinc	100	%Rec		11/23/21	2

Sample : IS121321ABL Blank

Information : Blank

Matrix : Solid

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	mg/Kg	U	12/14/21	1
7440360	Antimony	2.0	mg/Kg	U	12/14/21	1
7440382	Arsenic	2.5	mg/Kg	U	12/14/21	1
7440393	Barium	0.10	mg/Kg	U	12/14/21	1
7440417	Beryllium	0.10	mg/Kg	U	12/14/21	1
7440439	Cadmium	0.20	mg/Kg	U	12/14/21	1
7440702	Calcium	5.0	mg/Kg	U	12/14/21	1
7440473	Chromium	0.50	mg/Kg	U	12/14/21	1
7440484	Cobalt	0.50	mg/Kg	U	12/14/21	1
7440508	Copper	0.50	mg/Kg	U	12/14/21	1
7439896	Iron	5.0	mg/Kg	U	12/14/21	1
7439921	Lead	2.5	mg/Kg	U	12/14/21	1
7439954	Magnesium	5.0	mg/Kg	U	12/14/21	1
7439965	Manganese	0.20	mg/Kg	U	12/14/21	1
7440020	Nickel	0.50	mg/Kg	U	12/14/21	1
7440097	Potassium	70	mg/Kg	U	12/14/21	1
7782492	Selenium	5.0	mg/Kg	U	12/14/21	1
7440224	Silver	1.0	mg/Kg	U	12/14/21	1
7440235	Sodium	10	mg/Kg	U	12/14/21	1
7440280	Thallium	5.0	mg/Kg	U	12/14/21	1
7440622	Vanadium	0.50	mg/Kg	U	12/14/21	1
7440666	Zinc	2.0	mg/Kg	U	12/14/21	1

Sample : IW112221ABL Blank**Information :** Blank**Matrix :** Liquid**Parameter :** ICP/MS**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.8 - ICPMS 18 Elements**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7429905	Aluminum	10	ug/L	U	12/ 6/21	2
7440360	Antimony	0.50	ug/L	U	12/ 6/21	2
7440382	Arsenic	0.20	ug/L	U	12/ 6/21	2
7440439	Cadmium	0.050	ug/L	U	12/ 6/21	2
7440702	Calcium	20	ug/L	U	12/ 6/21	2
7440508	Copper	0.20	ug/L	U	12/ 6/21	2
7439896	Iron	10	ug/L	U	12/ 6/21	2
7439921	Lead	0.050	ug/L	U	12/ 6/21	2
7439954	Magnesium	15	ug/L	U	12/ 6/21	2

Parameter : ICP-AES**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
7440393	Barium	1.0	ug/L	U	11/23/21	2
7440417	Beryllium	1.0	ug/L	U	11/23/21	2
7440473	Chromium	5.0	ug/L	U	11/23/21	2
7440484	Cobalt	5.0	ug/L	U	11/23/21	2
7439965	Manganese	2.0	ug/L	U	11/23/21	2
7440020	Nickel	5.0	ug/L	U	11/23/21	2
7440097	Potassium	700	ug/L	U	11/23/21	2
7782492	Selenium	50	ug/L	U	11/23/21	2
7440224	Silver	10	ug/L	U	11/23/21	2
7440235	Sodium	100	ug/L	U	11/23/21	2
7440280	Thallium	50	ug/L	U	11/23/21	2
7440622	Vanadium	5.0	ug/L	U	11/23/21	2
7440666	Zinc	5.0	ug/L	U	11/23/21	2

Sample : IS121321AL1 Lab Control Std

Information : Lab Control Standard

Matrix : Solid

Parameter : ICP-AES

Fraction : Total

Prep Method: 3050B - Acid Digestion of Sediments, Sludges, and Soils, SW-846

Analysis Method: 6010D - Inductively Coupled Plasma-Atomic Emission Spectrometry, SW-846

Weight Basis : Dry

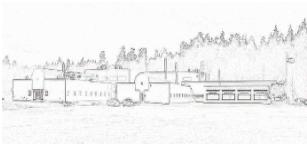
Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		12/14/21	1
7440360	Antimony	99	%Rec		12/14/21	1
7440382	Arsenic	99	%Rec		12/14/21	1
7440393	Barium	100	%Rec		12/14/21	1
7440417	Beryllium	99	%Rec		12/14/21	1
7440439	Cadmium	98	%Rec		12/14/21	1
7440702	Calcium	97	%Rec		12/14/21	1
7440473	Chromium	100	%Rec		12/14/21	1
7440484	Cobalt	94	%Rec		12/14/21	1
7440508	Copper	99	%Rec		12/14/21	1
7439896	Iron	98	%Rec		12/14/21	1
7439921	Lead	94	%Rec		12/14/21	1
7439954	Magnesium	101	%Rec		12/14/21	1
7439965	Manganese	100	%Rec		12/14/21	1
7440020	Nickel	96	%Rec		12/14/21	1
7440097	Potassium	99	%Rec		12/14/21	1
7782492	Selenium	98	%Rec		12/14/21	1
7440224	Silver	98	%Rec		12/14/21	1
7440235	Sodium	98	%Rec		12/14/21	1
7440280	Thallium	100	%Rec		12/14/21	1
7440622	Vanadium	100	%Rec		12/14/21	1
7440666	Zinc	98	%Rec		12/14/21	1

Sample : IW112221AL1 Lab Control Std**Information :** Lab Control Standard**Matrix :** Liquid**Parameter :** ICP/MS**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.8 - ICPMS 18 Elements**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7429905	Aluminum	100	%Rec		12/ 6/21	2
7440360	Antimony	98	%Rec		12/ 6/21	2
7440382	Arsenic	99	%Rec		12/ 6/21	2
7440439	Cadmium	97	%Rec		12/ 6/21	2
7440702	Calcium	101	%Rec		12/ 6/21	2
7440508	Copper	97	%Rec		12/ 6/21	2
7439896	Iron	102	%Rec		12/ 6/21	2
7439921	Lead	99	%Rec		12/ 6/21	2
7439954	Magnesium	100	%Rec		12/ 6/21	2

Parameter : ICP-AES**Fraction :** Total**Prep Method:** 200.2 - Metals, total recoverable, water, soil, EMSL-CIN**Analysis Method:** 200.7 - ICP Inductively Coupled Plasma-Atomic Emission Spectroscopy (22 elements)**Weight Basis :** N/A

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
7440393	Barium	102	%Rec		11/23/21	2
7440417	Beryllium	104	%Rec		11/23/21	2
7440473	Chromium	103	%Rec		11/23/21	2
7440484	Cobalt	95	%Rec		11/23/21	2
7439965	Manganese	102	%Rec		11/23/21	2
7440020	Nickel	99	%Rec		11/23/21	2
7440097	Potassium	100	%Rec		11/23/21	2
7782492	Selenium	104	%Rec		11/23/21	2
7440224	Silver	96	%Rec		11/23/21	2
7440235	Sodium	100	%Rec		11/23/21	2
7440280	Thallium	102	%Rec		11/23/21	2
7440622	Vanadium	105	%Rec		11/23/21	2
7440666	Zinc	100	%Rec		11/23/21	2



US EPA Region 10 Laboratory

Multi-Analyte Final Report



Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Sample : 21464450

Information : KRRC-SE01

Matrix : Sediment

Collected : 11/12/2021 6:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	52	ug/kg	U	11/22/21	1
83329	Acenaphthene	52	ug/kg	U	11/22/21	1
208968	Acenaphthylene	52	ug/kg	U	11/22/21	1
120127	Anthracene	52	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	52	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	52	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	52	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	52	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	52	ug/kg	U	11/22/21	1
218019	Chrysene	52	ug/kg	U	11/22/21	1
53703	Dibenz[a,h]anthracene	52	ug/kg	U	11/22/21	1
132649	Dibenzofuran	52	ug/kg	U	11/22/21	1
206440	Fluoranthene	52	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	52	ug/kg	U	11/22/21	1
91203	Naphthalene	52	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	52	ug/kg	U	11/22/21	1
85018	Phenanthrene	52	ug/kg	U	11/22/21	1
129000	Pyrene	52	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	91	%Rec		11/22/21	1
1719068	Anthracene-D10	94	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	109	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	103	%Rec		11/22/21	1

Sample : 21464451

Information : KRRC-SE02

Matrix : Sediment

Collected : 11/12/2021 10:30:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	110	ug/kg	U	11/22/21	1
83329	Acenaphthene	110	ug/kg	U	11/22/21	1
208968	Acenaphthylene	110	ug/kg	U	11/22/21	1
120127	Anthracene	110	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	110	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	110	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	110	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	110	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	110	ug/kg	U	11/22/21	1
218019	Chrysene	110	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	110	ug/kg	U	11/22/21	1
132649	Dibenzofuran	110	ug/kg	U	11/22/21	1
206440	Fluoranthene	110	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	110	ug/kg	U	11/22/21	1
91203	Naphthalene	110	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	110	ug/kg	U	11/22/21	1
85018	Phenanthrene	110	ug/kg	U	11/22/21	1
129000	Pyrene	110	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	86	%Rec		11/22/21	1
1719068	Anthracene-D10	89	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	100	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	85	%Rec		11/22/21	1
1718521	D10-Pyrene	95	%Rec		11/22/21	1

Sample : 21464452

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:35:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	56	ug/kg	U	11/22/21	1
83329	Acenaphthene	56	ug/kg	U	11/22/21	1
208968	Acenaphthylene	56	ug/kg	U	11/22/21	1
120127	Anthracene	56	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	56	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	56	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	56	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	56	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	56	ug/kg	U	11/22/21	1
218019	Chrysene	56	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	56	ug/kg	U	11/22/21	1
132649	Dibenzofuran	56	ug/kg	U	11/22/21	1
206440	Fluoranthene	56	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	56	ug/kg	U	11/22/21	1
91203	Naphthalene	56	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	56	ug/kg	U	11/22/21	1
85018	Phenanthrene	56	ug/kg	U	11/22/21	1
129000	Pyrene	56	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	87	%Rec		11/22/21	1
1719068	Anthracene-D10	92	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	102	%Rec		11/22/21	1

Sample : 21464453

Information : KRRC-SE04

Matrix : Sediment

Collected : 11/12/2021 8:04:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	32	ug/kg	U	11/22/21	1
83329	Acenaphthene	32	ug/kg	U	11/22/21	1
208968	Acenaphthylene	32	ug/kg	U	11/22/21	1
120127	Anthracene	32	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	32	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	32	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	32	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	32	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	32	ug/kg	U	11/22/21	1
218019	Chrysene	32	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	32	ug/kg	U	11/22/21	1
132649	Dibenzofuran	32	ug/kg	U	11/22/21	1
206440	Fluoranthene	32	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	32	ug/kg	U	11/22/21	1
91203	Naphthalene	32	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	32	ug/kg	U	11/22/21	1
85018	Phenanthrene	32	ug/kg	U	11/22/21	1
129000	Pyrene	32	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	79	%Rec		11/22/21	1
1719068	Anthracene-D10	91	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	104	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	82	%Rec		11/22/21	1
1718521	D10-Pyrene	99	%Rec		11/22/21	1

Sample : 21464454

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	88	ug/kg	U	11/22/21	1
83329	Acenaphthene	88	ug/kg	U	11/22/21	1
208968	Acenaphthylene	88	ug/kg	U	11/22/21	1
120127	Anthracene	88	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	88	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	88	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	88	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	88	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	88	ug/kg	U	11/22/21	1
218019	Chrysene	88	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	88	ug/kg	U	11/22/21	1
132649	Dibenzofuran	88	ug/kg	U	11/22/21	1
206440	Fluoranthene	88	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	88	ug/kg	U	11/22/21	1
91203	Naphthalene	88	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	88	ug/kg	U	11/22/21	1
85018	Phenanthrene	88	ug/kg	U	11/22/21	1
129000	Pyrene	88	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	85	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	88	%Rec		11/22/21	1
1718521	D10-Pyrene	100	%Rec		11/22/21	1

Sample : 21464455

Information : KRRC-SE06

Matrix : Sediment

Collected : 11/12/2021 10:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	68	ug/kg	U	11/22/21	1
83329	Acenaphthene	68	ug/kg	U	11/22/21	1
208968	Acenaphthylene	68	ug/kg	U	11/22/21	1
120127	Anthracene	68	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	68	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	68	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	68	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	68	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	68	ug/kg	U	11/22/21	1
218019	Chrysene	68	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	68	ug/kg	U	11/22/21	1
132649	Dibenzofuran	68	ug/kg	U	11/22/21	1
206440	Fluoranthene	68	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	68	ug/kg	U	11/22/21	1
91203	Naphthalene	68	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	68	ug/kg	U	11/22/21	1
85018	Phenanthrene	68	ug/kg	U	11/22/21	1
129000	Pyrene	68	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	87	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	84	%Rec		11/22/21	1
1718521	D10-Pyrene	98	%Rec		11/22/21	1

Sample : 21464456

Information : KRRC-SE03

Matrix : Sediment

Collected : 11/12/2021 8:40:00AM

Parameter : PAH**Prep Method:** 3541 - Automated soxhlet extraction**Analysis Method:** 8270E - Semivolatiles by GC/MS**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	43	ug/kg	U	11/22/21	1
83329	Acenaphthene	43	ug/kg	U	11/22/21	1
208968	Acenaphthylene	43	ug/kg	U	11/22/21	1
120127	Anthracene	43	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	43	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	43	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	43	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	43	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	43	ug/kg	U	11/22/21	1
218019	Chrysene	43	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	43	ug/kg	U	11/22/21	1
132649	Dibenzofuran	43	ug/kg	U	11/22/21	1
206440	Fluoranthene	43	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	43	ug/kg	U	11/22/21	1
91203	Naphthalene	43	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	43	ug/kg	U	11/22/21	1
85018	Phenanthrene	43	ug/kg	U	11/22/21	1
129000	Pyrene	43	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	94	%Rec		11/22/21	1
1719068	Anthracene-D10	94	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	109	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	89	%Rec		11/22/21	1
1718521	D10-Pyrene	105	%Rec		11/22/21	1

Sample : 21464457

Information : KRRC-SE02-1

Matrix : Sediment

Collected : 11/12/2021 10:40:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	210	ug/kg	U	11/22/21	1
83329	Acenaphthene	210	ug/kg	U	11/22/21	1
208968	Acenaphthylene	210	ug/kg	U	11/22/21	1
120127	Anthracene	210	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	210	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	210	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	210	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	210	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	210	ug/kg	U	11/22/21	1
218019	Chrysene	210	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	210	ug/kg	U	11/22/21	1
132649	Dibenzofuran	210	ug/kg	U	11/22/21	1
206440	Fluoranthene	210	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	210	ug/kg	U	11/22/21	1
91203	Naphthalene	210	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	210	ug/kg	U	11/22/21	1
85018	Phenanthrene	210	ug/kg	U	11/22/21	1
129000	Pyrene	210	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	91	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	106	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	86	%Rec		11/22/21	1
1718521	D10-Pyrene	101	%Rec		11/22/21	1

Sample : 21464458

Information : KRRC-SE06-1

Matrix : Sediment

Collected : 11/12/2021 11:12:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	150	ug/kg	U	11/22/21	1
83329	Acenaphthene	150	ug/kg	U	11/22/21	1
208968	Acenaphthylene	150	ug/kg	U	11/22/21	1
120127	Anthracene	150	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	150	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	150	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	150	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	150	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	150	ug/kg	U	11/22/21	1
218019	Chrysene	150	ug/kg	U	11/22/21	1
53703	Dibenzo[a,h]anthracene	150	ug/kg	U	11/22/21	1
132649	Dibenzofuran	150	ug/kg	U	11/22/21	1
206440	Fluoranthene	150	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	150	ug/kg	U	11/22/21	1
91203	Naphthalene	150	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	150	ug/kg	U	11/22/21	1
85018	Phenanthrene	150	ug/kg	U	11/22/21	1
129000	Pyrene	150	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	92	%Rec		11/22/21	1
1719068	Anthracene-D10	98	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	110	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	102	%Rec		11/22/21	1

Sample : 21464459

Information : KRRC-SW01

Matrix : Water

Collected : 11/12/2021 6:40:00AM

Parameter : PAH**Prep Method:** 3535A - Solid Phase Extraction**Analysis Method:** 8270E-SIM - Semivolatiles by GC/MS-SIM Mode**Weight Basis :** Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	89	%Rec		11/17/21	1
1719068	Anthracene-D10	96	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	97	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	76	%Rec		11/17/21	1
1718521	D10-Pyrene	88	%Rec		11/17/21	1

Sample : 21464461

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:35:00AM

Parameter : PAH**Prep Method:** 3535A - Solid Phase Extraction**Analysis Method:** 8270E-SIM - Semivolatiles by GC/MS-SIM Mode**Weight Basis :** Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		11/17/21	1
1719068	Anthracene-D10	99	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	96	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	86	%Rec		11/17/21	1
1718521	D10-Pyrene	91	%Rec		11/17/21	1

Sample : 21464463

Information : KRRC-SW04

Matrix : Water

Collected : 11/12/2021 8:04:00AM

Parameter : PAH**Prep Method:** 3535A - Solid Phase Extraction**Analysis Method:** 8270E-SIM - Semivolatiles by GC/MS-SIM Mode**Weight Basis :** Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	71	%Rec		11/17/21	1
1719068	Anthracene-D10	78	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	86	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	62	%Rec		11/17/21	1
1718521	D10-Pyrene	80	%Rec		11/17/21	1

Sample : 21464465

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : PAH**Prep Method:** 3535A - Solid Phase Extraction**Analysis Method:** 8270E-SIM - Semivolatiles by GC/MS-SIM Mode**Weight Basis :** Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	103	%Rec		11/17/21	1
1719068	Anthracene-D10	85	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	94	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	88	%Rec		11/17/21	1
1718521	D10-Pyrene	84	%Rec		11/17/21	1

Sample : 21464467

Information : KRRC-SW03

Matrix : Water

Collected : 11/12/2021 8:40:00AM

Parameter : PAH**Prep Method:** 3535A - Solid Phase Extraction**Analysis Method:** 8270E-SIM - Semivolatiles by GC/MS-SIM Mode**Weight Basis :** Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	83	%Rec		11/17/21	1
1719068	Anthracene-D10	97	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	96	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	68	%Rec		11/17/21	1
1718521	D10-Pyrene	90	%Rec		11/17/21	1

Sample : 21464469

Information : KRRC-SW02-1

Matrix : Water

Collected : 11/12/2021 10:40:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	83	%Rec		11/17/21	1
1719068	Anthracene-D10	98	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	92	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	69	%Rec		11/17/21	1
1718521	D10-Pyrene	83	%Rec		11/17/21	1

Sample : 21464471

Information : KRRC-SW06-1

Matrix : Water

Collected : 11/12/2021 11:12:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenzo[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	85	%Rec		11/17/21	1
1719068	Anthracene-D10	102	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	98	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	70	%Rec		11/17/21	1
1718521	D10-Pyrene	89	%Rec		11/17/21	1

Sample : 21464454 Matrix Spike

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	85	%Rec		11/22/21	1
83329	Acenaphthene	84	%Rec		11/22/21	1
208968	Acenaphthylene	84	%Rec		11/22/21	1
120127	Anthracene	89	%Rec		11/22/21	1
56553	Benzo(a)anthracene	92	%Rec		11/22/21	1
50328	Benzo(a)pyrene	99	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	102	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	98	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	92	%Rec		11/22/21	1
218019	Chrysene	84	%Rec		11/22/21	1
53703	Dibenzo[a,h]anthracene	102	%Rec		11/22/21	1
132649	Dibenzofuran	84	%Rec		11/22/21	1
206440	Fluoranthene	90	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	100	%Rec		11/22/21	1
91203	Naphthalene	81	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	88	%Rec		11/22/21	1
85018	Phenanthrene	84	%Rec		11/22/21	1
129000	Pyrene	89	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	86	%Rec		11/22/21	1
1719068	Anthracene-D10	89	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	103	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	87	%Rec		11/22/21	1
1718521	D10-Pyrene	94	%Rec		11/22/21	1

Sample : 21464465 Matrix Spike

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	77	%Rec		11/17/21	1
83329	Acenaphthene	69	%Rec		11/17/21	1
208968	Acenaphthylene	84	%Rec		11/17/21	1
120127	Anthracene	78	%Rec		11/17/21	1
56553	Benzo(a)anthracene	112	%Rec		11/17/21	1
50328	Benzo(a)pyrene	86	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	78	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	88	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	89	%Rec		11/17/21	1
218019	Chrysene	86	%Rec		11/17/21	1
53703	Dibenzo[a,h]anthracene	86	%Rec		11/17/21	1
206440	Fluoranthene	103	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	87	%Rec		11/17/21	1
91203	Naphthalene	67	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	72	%Rec		11/17/21	1
85018	Phenanthrene	79	%Rec		11/17/21	1
129000	Pyrene	80	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	88	%Rec		11/17/21	1
1719068	Anthracene-D10	78	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	91	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	76	%Rec		11/17/21	1
1718521	D10-Pyrene	83	%Rec		11/17/21	1

Sample : 21464454 Matrix Spike#2

Information : KRRC-SE05

Matrix : Sediment

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3541 - Automated soxhlet extraction

Analysis Method: 8270E - Semivolatiles by GC/MS

Weight Basis : Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	88	%Rec		11/22/21	1
83329	Acenaphthene	87	%Rec		11/22/21	1
208968	Acenaphthylene	89	%Rec		11/22/21	1
120127	Anthracene	91	%Rec		11/22/21	1
56553	Benzo(a)anthracene	96	%Rec		11/22/21	1
50328	Benzo(a)pyrene	100	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	103	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	105	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	83	%Rec		11/22/21	1
218019	Chrysene	88	%Rec		11/22/21	1
53703	Dibenzo[a,h]anthracene	107	%Rec		11/22/21	1
132649	Dibenzofuran	86	%Rec		11/22/21	1
206440	Fluoranthene	93	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	106	%Rec		11/22/21	1
91203	Naphthalene	84	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	94	%Rec		11/22/21	1
85018	Phenanthrene	86	%Rec		11/22/21	1
129000	Pyrene	94	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	92	%Rec		11/22/21	1
1719068	Anthracene-D10	93	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	105	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	100	%Rec		11/22/21	1

Sample : 21464465 Matrix Spike#2

Information : KRRC-SW05

Matrix : Water

Collected : 11/12/2021 8:00:00AM

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	93	%Rec		11/17/21	1
83329	Acenaphthene	88	%Rec		11/17/21	1
208968	Acenaphthylene	105	%Rec		11/17/21	1
120127	Anthracene	87	%Rec		11/17/21	1
56553	Benzo(a)anthracene	117	%Rec		11/17/21	1
50328	Benzo(a)pyrene	89	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	82	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	91	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	92	%Rec		11/17/21	1
218019	Chrysene	89	%Rec		11/17/21	1
53703	Dibenzo[a,h]anthracene	90	%Rec		11/17/21	1
206440	Fluoranthene	108	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	91	%Rec		11/17/21	1
91203	Naphthalene	87	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	95	%Rec		11/17/21	1
85018	Phenanthrene	88	%Rec		11/17/21	1
129000	Pyrene	83	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	111	%Rec		11/17/21	1
1719068	Anthracene-D10	89	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	96	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	92	%Rec		11/17/21	1
1718521	D10-Pyrene	87	%Rec		11/17/21	1

Sample : 105S112221B1 Blank**Information :** Blank**Matrix :** Solid**Parameter :** PAH**Prep Method:** 3541 - Automated soxhlet extraction**Analysis Method:** 8270E - Semivolatiles by GC/MS**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	25	ug/kg	U	11/22/21	1
83329	Acenaphthene	25	ug/kg	U	11/22/21	1
208968	Acenaphthylene	25	ug/kg	U	11/22/21	1
120127	Anthracene	25	ug/kg	U	11/22/21	1
56553	Benzo(a)anthracene	25	ug/kg	U	11/22/21	1
50328	Benzo(a)pyrene	25	ug/kg	U	11/22/21	1
191242	Benzo(g,h,i)perylene	25	ug/kg	U	11/22/21	1
205992	Benzo[b]Fluoranthene	25	ug/kg	U	11/22/21	1
207089	Benzo[k]fluoranthene	25	ug/kg	U	11/22/21	1
218019	Chrysene	25	ug/kg	U	11/22/21	1
53703	Dibenz[a,h]anthracene	25	ug/kg	U	11/22/21	1
132649	Dibenzofuran	25	ug/kg	U	11/22/21	1
206440	Fluoranthene	25	ug/kg	U	11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	25	ug/kg	U	11/22/21	1
91203	Naphthalene	25	ug/kg	U	11/22/21	1
91576	Naphthalene, 2-methyl-	25	ug/kg	U	11/22/21	1
85018	Phenanthrene	25	ug/kg	U	11/22/21	1
129000	Pyrene	25	ug/kg	U	11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	88	%Rec		11/22/21	1
1719068	Anthracene-D10	94	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	101	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	91	%Rec		11/22/21	1
1718521	D10-Pyrene	101	%Rec		11/22/21	1

Sample : 105W111721B1 Blank

Information : Blank

Matrix : Liquid

Parameter : PAH

Prep Method: 3535A - Solid Phase Extraction

Analysis Method: 8270E-SIM - Semivolatiles by GC/MS-SIM Mode

Weight Basis : Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Target Analyte Results:						
86737	9H-Fluorene	0.025	ug/L	U	11/17/21	1
83329	Acenaphthene	0.025	ug/L	U	11/17/21	1
208968	Acenaphthylene	0.025	ug/L	U	11/17/21	1
120127	Anthracene	0.025	ug/L	U	11/17/21	1
56553	Benzo(a)anthracene	0.025	ug/L	U	11/17/21	1
50328	Benzo(a)pyrene	0.025	ug/L	U	11/17/21	1
191242	Benzo(g,h,i)perylene	0.025	ug/L	U	11/17/21	1
205992	Benzo[b]Fluoranthene	0.025	ug/L	U	11/17/21	1
207089	Benzo[k]fluoranthene	0.025	ug/L	U	11/17/21	1
218019	Chrysene	0.025	ug/L	U	11/17/21	1
53703	Dibenz[a,h]anthracene	0.025	ug/L	U	11/17/21	1
206440	Fluoranthene	0.025	ug/L	U	11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	0.025	ug/L	U	11/17/21	1
91203	Naphthalene	0.025	ug/L	U	11/17/21	1
91576	Naphthalene, 2-methyl-	0.025	ug/L	U	11/17/21	1
85018	Phenanthrene	0.025	ug/L	U	11/17/21	1
129000	Pyrene	0.025	ug/L	U	11/17/21	1

Surrogate Compounds:

93951974	Acenaphthylene-D8	104	%Rec	11/17/21	1
1719068	Anthracene-D10	100	%Rec	11/17/21	1
63466717	Benzo[a]pyrene-D12	103	%Rec	11/17/21	1
81103799	D10-Fluorene (SS)	97	%Rec	11/17/21	1
1718521	D10-Pyrene	97	%Rec	11/17/21	1

Sample : 105S112221L1 Lab Control Std**Information :** Lab Control Standard**Matrix :** Solid**Parameter :** PAH**Prep Method:** 3541 - Automated soxhlet extraction**Analysis Method:** 8270E - Semivolatiles by GC/MS**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	91	%Rec		11/22/21	1
83329	Acenaphthene	88	%Rec		11/22/21	1
208968	Acenaphthylene	90	%Rec		11/22/21	1
120127	Anthracene	93	%Rec		11/22/21	1
56553	Benzo(a)anthracene	96	%Rec		11/22/21	1
50328	Benzo(a)pyrene	102	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	93	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	100	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	94	%Rec		11/22/21	1
218019	Chrysene	87	%Rec		11/22/21	1
53703	Dibenz[a,h]anthracene	102	%Rec		11/22/21	1
132649	Dibenzofuran	89	%Rec		11/22/21	1
206440	Fluoranthene	97	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	99	%Rec		11/22/21	1
91203	Naphthalene	87	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	89	%Rec		11/22/21	1
85018	Phenanthrene	88	%Rec		11/22/21	1
129000	Pyrene	94	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	94	%Rec		11/22/21	1
1719068	Anthracene-D10	96	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	106	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	95	%Rec		11/22/21	1
1718521	D10-Pyrene	101	%Rec		11/22/21	1

Sample : 105W111721L1 Lab Control Std**Information :** Lab Control Standard**Matrix :** Liquid**Parameter :** PAH**Prep Method:** 3535A - Solid Phase Extraction**Analysis Method:** 8270E-SIM - Semivolatiles by GC/MS-SIM Mode**Weight Basis :** Unspecified

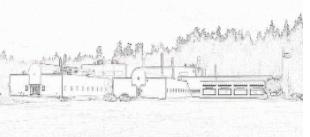
Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	95	%Rec		11/17/21	1
83329	Acenaphthene	94	%Rec		11/17/21	1
208968	Acenaphthylene	101	%Rec		11/17/21	1
120127	Anthracene	99	%Rec		11/17/21	1
56553	Benzo(a)anthracene	119	%Rec		11/17/21	1
50328	Benzo(a)pyrene	98	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	87	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	98	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	95	%Rec		11/17/21	1
218019	Chrysene	92	%Rec		11/17/21	1
53703	Dibenz[a,h]anthracene	92	%Rec		11/17/21	1
206440	Fluoranthene	108	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	94	%Rec		11/17/21	1
91203	Naphthalene	90	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	97	%Rec		11/17/21	1
85018	Phenanthrene	90	%Rec		11/17/21	1
129000	Pyrene	92	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	105	%Rec		11/17/21	1
1719068	Anthracene-D10	99	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	106	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	96	%Rec		11/17/21	1
1718521	D10-Pyrene	95	%Rec		11/17/21	1

Sample : 105S112221L2 Lab Control Std#2**Information :** Lab Control Standard Dup.**Matrix :** Solid**Parameter :** PAH**Prep Method:** 3541 - Automated soxhlet extraction**Analysis Method:** 8270E - Semivolatiles by GC/MS**Weight Basis :** Dry

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	92	%Rec		11/22/21	1
83329	Acenaphthene	90	%Rec		11/22/21	1
208968	Acenaphthylene	91	%Rec		11/22/21	1
120127	Anthracene	95	%Rec		11/22/21	1
56553	Benzo(a)anthracene	96	%Rec		11/22/21	1
50328	Benzo(a)pyrene	105	%Rec		11/22/21	1
191242	Benzo(g,h,i)perylene	97	%Rec		11/22/21	1
205992	Benzo[b]Fluoranthene	95	%Rec		11/22/21	1
207089	Benzo[k]fluoranthene	102	%Rec		11/22/21	1
218019	Chrysene	90	%Rec		11/22/21	1
53703	Dibenz[a,h]anthracene	103	%Rec		11/22/21	1
132649	Dibenzofuran	90	%Rec		11/22/21	1
206440	Fluoranthene	98	%Rec		11/22/21	1
193395	Indeno(1,2,3-cd)pyrene	101	%Rec		11/22/21	1
91203	Naphthalene	88	%Rec		11/22/21	1
91576	Naphthalene, 2-methyl-	90	%Rec		11/22/21	1
85018	Phenanthrene	89	%Rec		11/22/21	1
129000	Pyrene	94	%Rec		11/22/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	94	%Rec		11/22/21	1
1719068	Anthracene-D10	96	%Rec		11/22/21	1
63466717	Benzo[a]pyrene-D12	108	%Rec		11/22/21	1
81103799	D10-Fluorene (SS)	96	%Rec		11/22/21	1
1718521	D10-Pyrene	99	%Rec		11/22/21	1

Sample : 105W111721L2 Lab Control Std#2**Information :** Lab Control Standard Dup.**Matrix :** Liquid**Parameter :** PAH**Prep Method:** 3535A - Solid Phase Extraction**Analysis Method:** 8270E-SIM - Semivolatiles by GC/MS-SIM Mode**Weight Basis :** Unspecified

Analyte Code	Analyte Name	Result	Unit	Qual.	Analysis Date	Dilution
Spiked Compounds:						
86737	9H-Fluorene	98	%Rec		11/17/21	1
83329	Acenaphthene	96	%Rec		11/17/21	1
208968	Acenaphthylene	105	%Rec		11/17/21	1
120127	Anthracene	103	%Rec		11/17/21	1
56553	Benzo(a)anthracene	123	%Rec		11/17/21	1
50328	Benzo(a)pyrene	100	%Rec		11/17/21	1
191242	Benzo(g,h,i)perylene	90	%Rec		11/17/21	1
205992	Benzo[b]Fluoranthene	100	%Rec		11/17/21	1
207089	Benzo[k]fluoranthene	97	%Rec		11/17/21	1
218019	Chrysene	95	%Rec		11/17/21	1
53703	Dibenz[a,h]anthracene	95	%Rec		11/17/21	1
206440	Fluoranthene	112	%Rec		11/17/21	1
193395	Indeno(1,2,3-cd)pyrene	97	%Rec		11/17/21	1
91203	Naphthalene	93	%Rec		11/17/21	1
91576	Naphthalene, 2-methyl-	100	%Rec		11/17/21	1
85018	Phenanthrene	93	%Rec		11/17/21	1
129000	Pyrene	96	%Rec		11/17/21	1
Surrogate Compounds:						
93951974	Acenaphthylene-D8	110	%Rec		11/17/21	1
1719068	Anthracene-D10	103	%Rec		11/17/21	1
63466717	Benzo[a]pyrene-D12	109	%Rec		11/17/21	1
81103799	D10-Fluorene (SS)	99	%Rec		11/17/21	1
1718521	D10-Pyrene	98	%Rec		11/17/21	1



US EPA Region 10 Laboratory

Multi-Sample Final Report



Project Code : SFP-174C

Site : KITSAP RIFLE & REVOLVER

Contact : Brandon Perkins

Account : 2022T10P000FD210ZZLA00

Parameter(s): Hg

Analyte: 7439976 - Mercury

Weight Basis : N/A

Prep Method(s): 245.1 - Cold vapor mercury in water

Analytical Method: 245.1 - Cold vapor mercury in water (CVAAS)

Target Analyte Results:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464459 sam	KRRC-SW01	Water	0.050	ug/L	U	11/29/21	1
21464460 sam	KRRC-SW01	Filtered	0.050	ug/L	U	11/29/21	1
21464461 sam	KRRC-SW03	Water	0.050	ug/L	U	11/29/21	1
21464462 sam	KRRC-SW03	Filtered	0.050	ug/L	U	11/29/21	1
21464463 sam	KRRC-SW04	Water	0.050	ug/L	U	11/29/21	1
21464464 sam	KRRC-SW04	Filtered	0.050	ug/L	U	11/29/21	1
21464465 sam	KRRC-SW05	Water	0.050	ug/L	U	11/29/21	1
21464466 sam	KRRC-SW05	Filtered	0.050	ug/L	U	11/29/21	1
21464467 sam	KRRC-SW03	Water	0.050	ug/L	U	11/29/21	1
21464468 sam	KRRC-SW03	Filtered	0.050	ug/L	U	11/29/21	1
21464469 sam	KRRC-SW02-1	Water	0.050	ug/L	U	11/29/21	1
21464470 sam	KRRC-SW02-1	Filtered	0.050	ug/L	U	11/29/21	1
21464471 sam	KRRC-SW06-1	Water	0.050	ug/L	U	11/29/21	1
21464472 sam	KRRC-SW06-1	Filtered	0.050	ug/L	U	11/29/21	1
21464465 du	KRRC-SW05	Water	0.050	ug/L	U	11/29/21	1
21464466 du	KRRC-SW05	Filtered	0.050	ug/L	U	11/29/21	1
IW112921ABL blk	Blank	Liquid	0.050	ug/L	U	11/29/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464465 ms	KRRC-SW05	Water	108	%Rec		11/29/21	1
21464466 ms	KRRC-SW05	Filtered	99	%Rec		11/29/21	1
21464465 msd	KRRC-SW05	Water	107	%Rec		11/29/21	1
21464466 msd	KRRC-SW05	Filtered	99	%Rec		11/29/21	1
IW112921AL1 lcs	Lab Control Standard	Liquid	101	%Rec		11/29/21	1

Analyte: 7439976 - Mercury

Weight Basis : Dry

Prep Method(s): 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Analytical Method: 7471B - Mercury: Manual Cold Vapor - Solid/Semisolid Waste, SW-846

Target Analyte Results:

Target Analyte Results (cont.):

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464450 sam	KRRC-SE01	Sediment	0.0649	mg/Kg		11/17/21	1
21464451 sam	KRRC-SE02	Sediment	0.195	mg/Kg		11/17/21	1
21464452 sam	KRRC-SE03	Sediment	0.0346	mg/Kg		11/17/21	1
21464453 sam	KRRC-SE04	Sediment	0.0201	mg/Kg		11/17/21	1
21464454 sam	KRRC-SE05	Sediment	0.0883	mg/Kg		11/17/21	1
21464455 sam	KRRC-SE06	Sediment	0.182	mg/Kg		11/17/21	1
21464456 sam	KRRC-SE03	Sediment	0.0902	mg/Kg		11/17/21	1
21464457 sam	KRRC-SE02-1	Sediment	0.210	mg/Kg		11/17/21	1
21464458 sam	KRRC-SE06-1	Sediment	0.114	mg/Kg		11/17/21	1
21464454 du	KRRC-SE05	Sediment	0.0864	mg/Kg		11/17/21	1
IS111621ABL blk	Blank	Solid	0.010	mg/Kg	U	11/17/21	1

Spiked Compounds:

Sample	Information	Lab Matrix	Result	Unit	Qual.	Analysis Date	Dilution
21464454 ms	KRRC-SE05	Sediment	99	%Rec		11/17/21	1
21464454 msd	KRRC-SE05	Sediment	100	%Rec		11/17/21	1
IS111621ACO std	Control	Solid	94	%Rec		11/17/21	20
IS111621AL1 lcs	Lab Control Standard	Solid	100	%Rec		11/17/21	1